G1.Sniper Z97

User's Manual

Rev. 1001

12ME-G1SNI97-1001R

Declaration of Conformity

We, Manufacturer/Importer,

G.B.T. Technology Trading GMbH

Address: **Bullenkoppel 16, 22047 Hamburg, Germany**

Declare that the product

Product Type: **Motherboard**

Product Name: **G1.Sniper Z97**

conforms with the essential requirements of the following directives:

☒ **2004/108/EC EMC Directive:**

☒ Conduction & Radiated Emissions:	EN 55022:2010
☒ Immunity:	EN 55024:2010
☒ Power-line harmonics:	EN 61000-3-2:2006+A2:2009
☒ Power-line flicker:	EN 61000-3-3:2008

☒ **2006/95/EC LVD Directive**

☒ Safety:	EN60950-1:2006+A12:2011

☒ **2011/65/EU RoHS Directive**

☒ Restriction of use of certain substances in electronic equipment:	This product does not contain any of the restricted substances listed in Annex II, in concentrations and applications banned by the directive.

☒ **CE marking**

Signature: Timmy Huang

(Stamp)

Date: Mar. 28, 2014

Name: Timmy Huang

DECLARATION OF CONFORMITY

Per FCC Part 2 Section 2.1077(a)

Responsible Party Name: **G.B.T. INC. (U.S.A.)**

Address: **17358 Railroad Street**
City of Industry, CA 91748

Phone/Fax No: **(626) 854-9338/ (626) 854-9326**

hereby declares that the product

Product Name: **Motherboard**

Model Number: G1.Sniper Z97

Conforms to the following specifications:

FCC Part 15, Subpart B, Section 15.107(a) and Section 15.109 (a),Class B Digital Device

Supplementary Information:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful and (2) this device must accept any inference received, including that may cause undesired operation.

Representative Person's Name: ERIC LU

Signature: Eric Lu

Date: Mar. 28, 2014

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Documentation Classifications

In order to assist in the use of this product, GIGABYTE provides the following types of documentations:

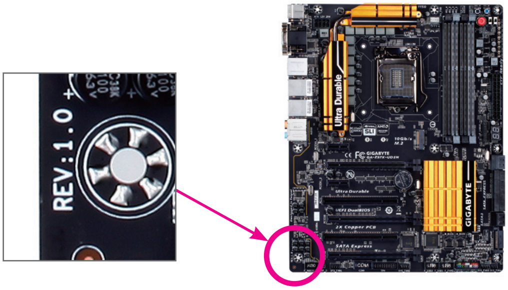
- For quick set-up of the product, read the Quick Installation Guide included with the product.
- For detailed product information, carefully read the User's Manual.

For product-related information, check on our website at: http://www.gigabyte.com

Identifying Your Motherboard Revision

The revision number on your motherboard looks like this: "REV: X.X." For example, "REV: 1.0" means the revision of the motherboard is 1.0. Check your motherboard revision before updating motherboard BIOS, drivers, or when looking for technical information.

Example:



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Box Contents

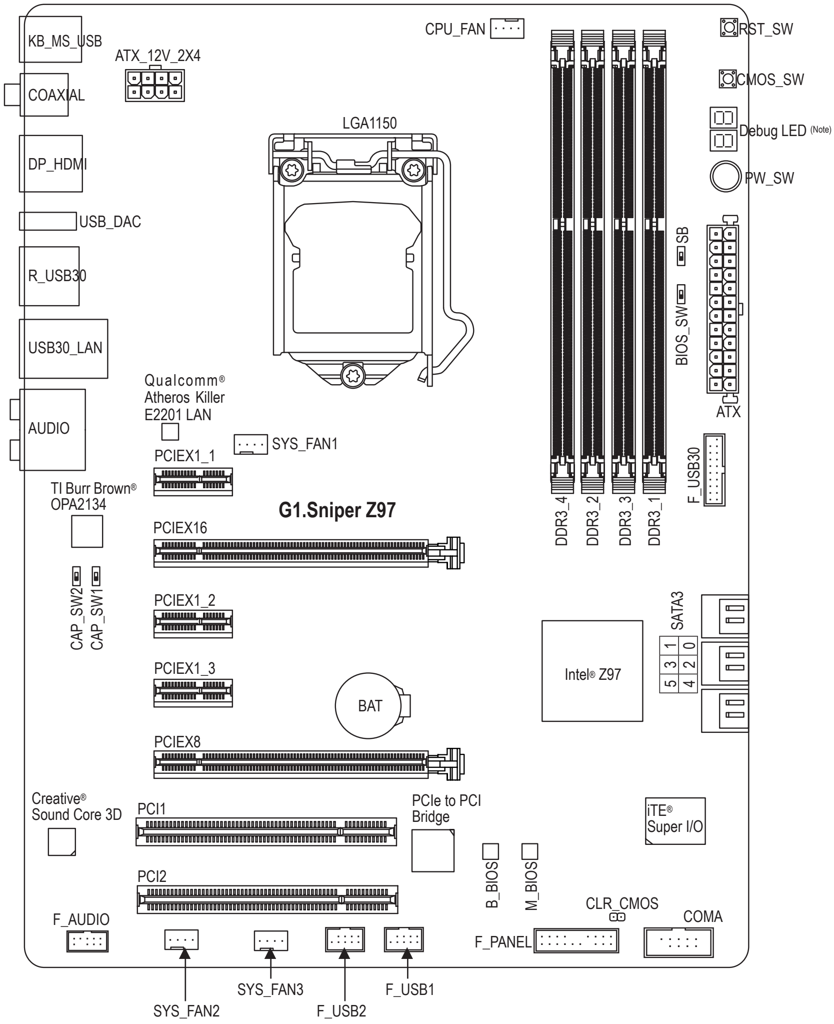
- ☑ G1.Sniper Z97 motherboard
- ☑ Motherboard driver disk
- ☑ User's Manual
- ☑ Quick Installation Guide
- ☑ Four SATA cables
- ☑ Two Velcro cable ties
- ☑ I/O Shield
- ☑ One 2-Way SLI bridge connector

The box contents above are for reference only and the actual items shall depend on the product package you obtain. The box contents are subject to change without notice.

Optional Items

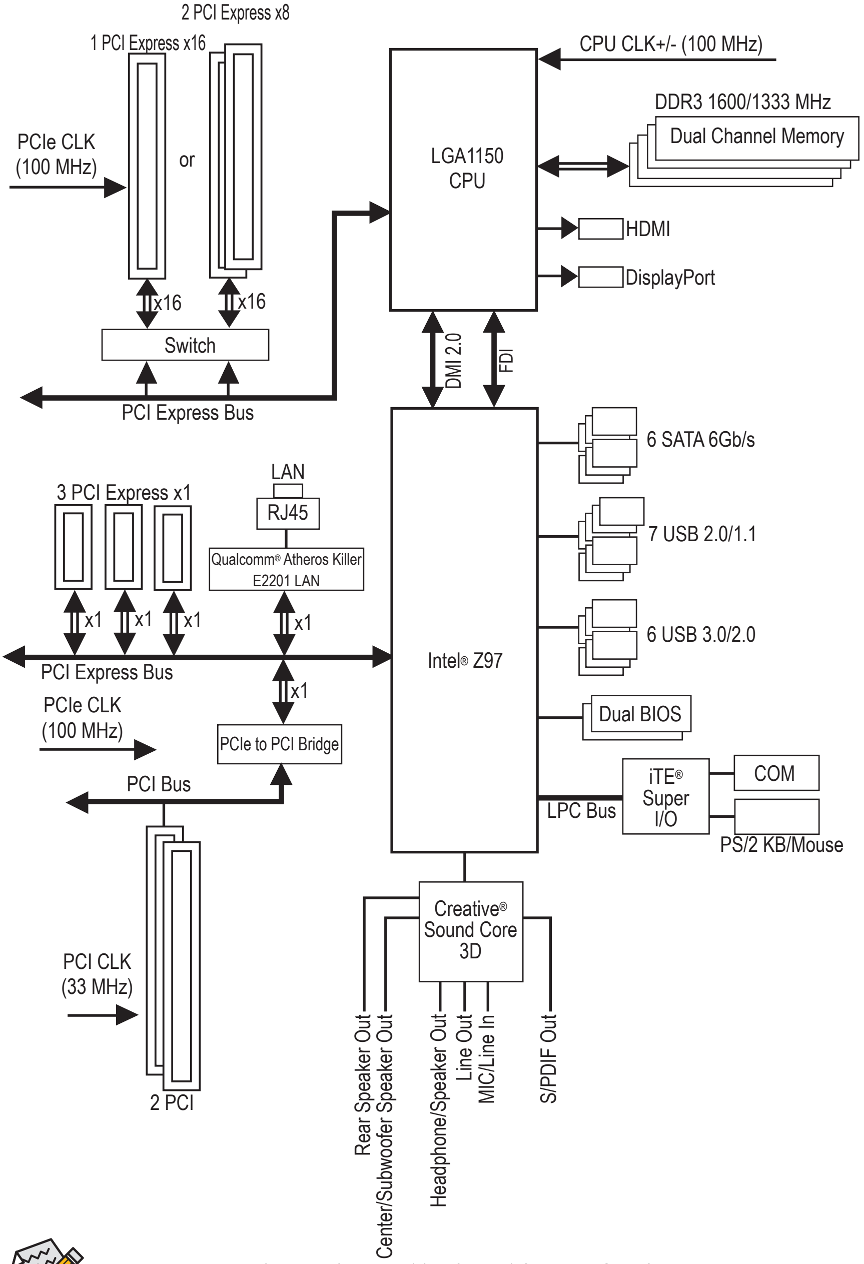
- ☐ 2-port USB 2.0 bracket (Part No. 12CR1-1UB030-6*R)
- ☐ eSATA bracket (Part No. 12CF1-3SATPW-4*R)
- ☐ 3.5" Front Panel with 2 USB 3.0/2.0 ports (Part No. 12CR1-FPX582-2*R)
- ☐ HDMI-to-DVI adapter (Part No. 12CT2-HDMI01-1*R)
- ☐ COM port cable (Part No. 12CF1-1CM001-3*R)

G1.Sniper Z97 Motherboard Layout


KB_MS_USB
ATX_12V_2X4
CPU_FAN
RST_SW
COAXIAL
CMOS_SW
LGA1150
Debug LED (Note)
DP_HDMI
PW_SW
USB_DAC
SB
R_USB30
BIOS_SW
USB30_LAN
Qualcomm®
Atheros Killer
E2201 LAN
ATX
AUDIO
SYS_FAN1
PCIEX1_1
F_USB30
TI Burr Brown®
OPA2134
G1.Sniper Z97
PCIEX16
DDR3_4
DDR3_2
DDR3_3
DDR3_1
CAP_SW2
CAP_SW1
PCIEX1_2
SATA3
1
0
3
2
5
4
PCIEX1_3
Intel® Z97
BAT
PCIEX8
Creative®
Sound Core 3D
PCI1
PCIe to PCI
Bridge
iTE®
Super I/O
PCI2
B_BIOS
M_BIOS
CLR_CMOS
F_AUDIO
COMA
F_PANEL
SYS_FAN3
F_USB1
SYS_FAN2
F_USB2

(Note) For debug code information, please refer to Chapter 6.

G1.Sniper Z97 Motherboard Block Diagram


2 PCI Express x8
1 PCI Express x16
or
PCIe CLK
(100 MHz)
x16
x16
Switch
PCI Express Bus
LGA1150
CPU
CPU CLK+/- (100 MHz)
DDR3 1600/1333 MHz
Dual Channel Memory
HDMI
DisplayPort
DMI 2.0
FDI
6 SATA 6Gb/s
7 USB 2.0/1.1
6 USB 3.0/2.0
Dual BIOS
LAN
RJ45
Qualcomm® Atheros Killer
E2201 LAN
3 PCI Express x1
x1
x1
x1
x1
PCI Express Bus
Intel® Z97
PCIe CLK
(100 MHz)
x1
PCIe to PCI Bridge
PCI Bus
iTE®
Super
I/O
COM
LPC Bus
PS/2 KB/Mouse
PCI CLK
(33 MHz)
2 PCI
Creative®
Sound Core
3D
Rear Speaker Out
Center/Subwoofer Speaker Out
Headphone/Speaker Out
Line Out
MIC/Line In
S/PDIF Out

For detailed product information/limitation(s), refer to "1-2 Product Specifications."

Chapter 1 Hardware Installation

1-1 Installation Precautions

The motherboard contains numerous delicate electronic circuits and components which can become damaged as a result of electrostatic discharge (ESD). Prior to installation, carefully read the user's manual and follow these procedures:

- Prior to installation, make sure the chassis is suitable for the motherboard.
- Prior to installation, do not remove or break motherboard S/N (Serial Number) sticker or warranty sticker provided by your dealer. These stickers are required for warranty validation.
- Always remove the AC power by unplugging the power cord from the power outlet before installing or removing the motherboard or other hardware components.
- When connecting hardware components to the internal connectors on the motherboard, make sure they are connected tightly and securely.
- When handling the motherboard, avoid touching any metal leads or connectors.
- It is best to wear an electrostatic discharge (ESD) wrist strap when handling electronic components such as a motherboard, CPU or memory. If you do not have an ESD wrist strap, keep your hands dry and first touch a metal object to eliminate static electricity.
- Prior to installing the motherboard, please have it on top of an antistatic pad or within an electrostatic shielding container.
- Before unplugging the power supply cable from the motherboard, make sure the power supply has been turned off.
- Before turning on the power, make sure the power supply voltage has been set according to the local voltage standard.
- Before using the product, please verify that all cables and power connectors of your hardware components are connected.
- To prevent damage to the motherboard, do not allow screws to come in contact with the motherboard circuit or its components.
- Make sure there are no leftover screws or metal components placed on the motherboard or within the computer casing.
- Do not place the computer system on an uneven surface.
- Do not place the computer system in a high-temperature environment.
- Turning on the computer power during the installation process can lead to damage to system components as well as physical harm to the user.
- If you are uncertain about any installation steps or have a problem related to the use of the product, please consult a certified computer technician.

1-2 Product Specifications

CPU	◆ Support for Intel® Core™ i7 processors/Intel® Core™ i5 processors/ Intel® Core™ i3 processors/Intel® Pentium® processors/Intel® Celeron® processors in the LGA1150 package (Go to GIGABYTE's website for the latest CPU support list.) ◆ L3 cache varies with CPU
Chipset	◆ Intel® Z97 Express Chipset
Memory	◆ 4 x DDR3 DIMM sockets supporting up to 32 GB of system memory * Due to a Windows 32-bit operating system limitation, when more than 4 GB of physical memory is installed, the actual memory size displayed will be less than the size of the physical memory installed. ◆ Dual channel memory architecture ◆ Support for DDR3 1600/1333 MHz memory modules ◆ Support for non-ECC memory modules ◆ Support for Extreme Memory Profile (XMP) memory modules (Go to GIGABYTE's website for the latest supported memory speeds and memory modules.)
Onboard Graphics	◆ Integrated Graphics Processor: - 1 x DisplayPort, supporting a maximum resolution of 4096x2160@24Hz or 3840x2160@60Hz * Support for DisplayPort 1.2 version. - 1 x HDMI port, supporting a maximum resolution of 4096x2160@24Hz or 2560x1600@60Hz * Support for HDMI 1.4a version. - Maximum shared memory of 1 GB
Audio	◆ Creative® Sound Core 3D chip ◆ TI Burr Brown® OPA2134 operational amplifier ◆ Support for Sound Blaster Recon3Di ◆ High Definition Audio ◆ 2/5.1-channel ◆ Support for S/PDIF Out
LAN	◆ Qualcomm® Atheros Killer E2201 LAN chip (10/100/1000 Mbit)
Expansion Slots	◆ 1 x PCI Express x16 slot, running at x16 (PCIEX16) * For optimum performance, if only one PCI Express graphics card is to be installed, be sure to install it in the PCIEX16 slot. ◆ 1 x PCI Express x16 slot, running at x8 (PCIEX8) * The PCIEX8 slot shares bandwidth with the PCIEX16 slot. When the PCIEX8 slot is populated, the PCIEX16 slot will operate at up to x8 mode. (All PCI Express x16 slots conform to PCI Express 3.0 standard.) ◆ 3 x PCI Express x1 slots (All PCI Express x1 slots conform to PCI Express 2.0 standard.) ◆ 2 x PCI slots
Multi-Graphics Technology	◆ Support for 2-Way AMD CrossFire™/2-Way NVIDIA® SLI™ Technology
Storage Interface	◆ Chipset: - 6 x SATA 6Gb/s connectors - Support for RAID 0, RAID 1, RAID 5, and RAID 10

USB	◆ Chipset: - 6 x USB 3.0/2.0 ports (4 ports on the back panel, 2 ports available through the internal USB header) - 7 x USB 2.0/1.1 ports (3 ports on the back panel, 4 ports available through the internal USB headers)
Internal Connectors	◆ 1 x 24-pin ATX main power connector ◆ 1 x 8-pin ATX 12V power connector ◆ 6 x SATA 6Gb/s connectors ◆ 1 x CPU fan header ◆ 3 x system fan headers ◆ 1 x front panel header ◆ 1 x front panel audio header ◆ 1 x USB 3.0/2.0 header ◆ 2 x USB 2.0/1.1 headers ◆ 1 x serial port header ◆ 1 x Clear CMOS jumper ◆ 1 x power button ◆ 1 x reset button ◆ 1 x Clear CMOS button ◆ 2 x BIOS switchs ◆ 2 x audio gain control switches
Back Panel Connectors	◆ 1 x PS/2 keyboard/mouse port ◆ 1 x coaxial S/PDIF Out connector ◆ 1 x optical S/PDIF Out connector ◆ 1 x DisplayPort ◆ 1 x HDMI port ◆ 4 x USB 3.0/2.0 ports ◆ 3 x USB 2.0/1.1 ports ◆ 1 x RJ-45 port ◆ 5 x audio jacks (Center/Subwoofer Speaker Out, Rear Speaker Out, Line In/Mic In, Line Out, Headphone)
I/O Controller	◆ iTE® I/O Controller Chip
Hardware Monitor	◆ System voltage detection ◆ CPU/System temperature detection ◆ CPU/System fan speed detection ◆ CPU/System overheating warning ◆ CPU/System fan fail warning ◆ CPU/System fan speed control * Whether the fan speed control function is supported will depend on the cooler you install.

BIOS	◆ 2 x 64 Mbit flash ◆ Use of licensed AMI UEFI BIOS ◆ Support for DualBIOS™ ◆ PnP 1.0a, DMI 2.7, SM BIOS 2.7, ACPI 2.0
Unique Features	◆ Support for APP Center * Available applications in APP Center may differ by motherboard model. Supported functions of each application may also differ depending on motherboard specifications. - @BIOS - EasyTune - EZ Setup - Fast Boot - Game Controller - ON/OFF Charge - Smart TimeLock - Smart Recovery 2 - System Information Viewer - USB Blocker ◆ Support for Q-Flash ◆ Support for Smart Switch ◆ Support for Xpress Install
Bundled Software	◆ Norton® Internet Security (OEM version) ◆ Intel® Rapid Start Technology ◆ Intel® Smart Connect Technology ◆ Intel® Smart Response Technology
Operating System	◆ Support for Windows 8.1/8/7
Form Factor	◆ ATX Form Factor; 30.5cm x 23.3cm

* GIGABYTE reserves the right to make any changes to the product specifications and product-related information without prior notice.

* Please visit the **Support & Downloads\Utility** page on GIGABYTE's website to check the supported operating system(s) for the software listed in the "Unique Features" and "Bundled Software" columns.

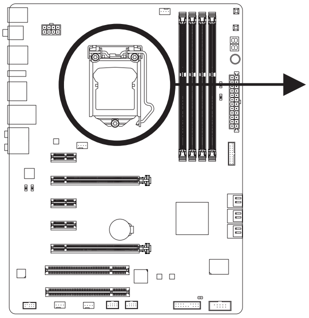
1-3 Installing the CPU and CPU Cooler

Read the following guidelines before you begin to install the CPU:

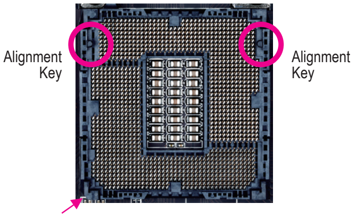
- Make sure that the motherboard supports the CPU.
  (Go to GIGABYTE's website for the latest CPU support list.)
- Always turn off the computer and unplug the power cord from the power outlet before installing the CPU to prevent hardware damage.
- Locate the pin one of the CPU. The CPU cannot be inserted if oriented incorrectly. (Or you may locate the notches on both sides of the CPU and alignment keys on the CPU socket.)
- Apply an even and thin layer of thermal grease on the surface of the CPU.
- Do not turn on the computer if the CPU cooler is not installed, otherwise overheating and damage of the CPU may occur.
- Set the CPU host frequency in accordance with the CPU specifications. It is not recommended that the system bus frequency be set beyond hardware specifications since it does not meet the standard requirements for the peripherals. If you wish to set the frequency beyond the standard specifications, please do so according to your hardware specifications including the CPU, graphics card, memory, hard drive, etc.

1-3-1 Installing the CPU

A. Locate the alignment keys on the motherboard CPU socket and the notches on the CPU.

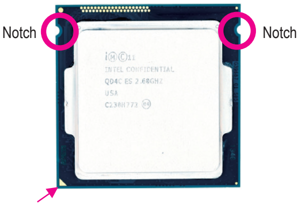


LGA1150 CPU Socket



Pin One Corner of the CPU Socket

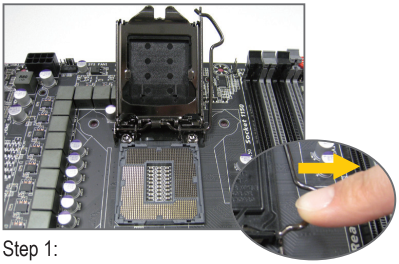
LGA1150 CPU



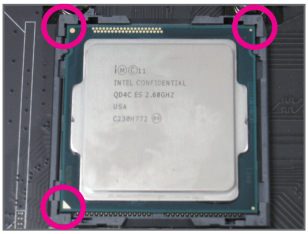
Triangle Pin One Marking on the CPU

B. Follow the steps below to correctly install the CPU into the motherboard CPU socket.

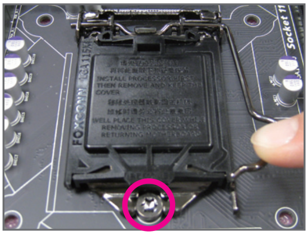
- **Before installing the CPU, make sure to turn off the computer and unplug the power cord from the power outlet to prevent damage to the CPU.**
- **To protect the socket contacts, do not remove the protective plastic cover unless the CPU is inserted into the CPU socket. Save the cover properly and replace it if the CPU is removed.**



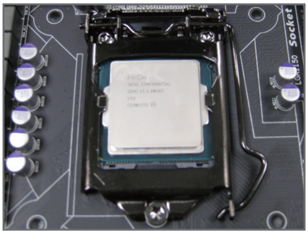
Step 1:
Gently press the CPU socket lever handle down and away from the socket with your finger. Then completely lift the CPU socket lever and the metal load plate/plastic cover will be lifted as well.



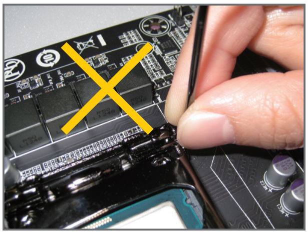
Step 2:
Hold the CPU with your thumb and index fingers. Align the CPU pin one marking (triangle) with the pin one corner of the CPU socket (or you may align the CPU notches with the socket alignment keys) and gently insert the CPU into position.



Step 3:
Once the CPU is properly inserted, carefully replace the load plate. When replacing the load plate, make sure the front end of the load plate is under the shoulder screw. Then press the CPU socket lever. The protective plastic cover may pop off from the load plate during the process of engaging the lever. Remove the cover. (Save the cover properly and always replace it when the CPU is not installed.)



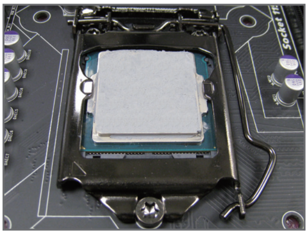
Step 4:
Finally, secure the lever under its retention tab to complete the installation of the CPU.



NOTE:
Hold the CPU socket lever by the handle, not the lever base portion.

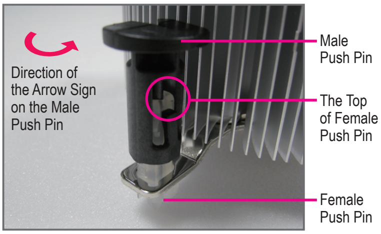
1-3-2 Installing the CPU Cooler

Follow the steps below to correctly install the CPU cooler on the motherboard.



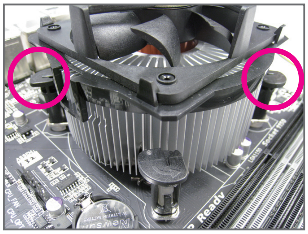
Step 1:

Apply an even and thin layer of thermal grease on the surface of the installed CPU.


Direction of the Arrow Sign on the Male Push Pin
Male Push Pin
The Top of Female Push Pin
Female Push Pin

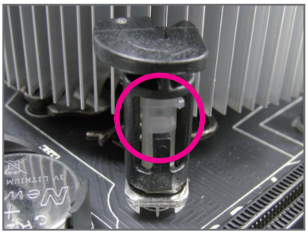
Step 2:

Before installing the cooler, note the direction of the arrow sign ↷ on the male push pin. (Turning the push pin along the direction of arrow is to remove the cooler, on the contrary, is to install.)



Step 3:

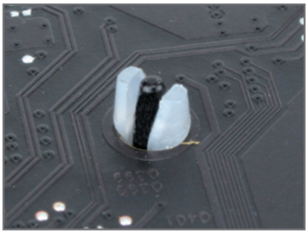
Place the cooler atop the CPU, aligning the four push pins through the pin holes on the motherboard. Push down on the push pins diagonally.



Step 4:

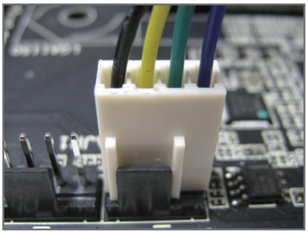
You should hear a "click" when pushing down each push pin. Check that the Male and Female push pins are joined closely.

(Refer to your CPU cooler installation manual for instructions on installing the cooler.)



Step 5:

After the installation, check the back of the motherboard. If the push pin is inserted as the picture above shows, the installation is complete.



Step 6:

Finally, attach the power connector of the CPU cooler to the CPU fan header (CPU_FAN) on the motherboard.

Use extreme care when removing the CPU cooler because the thermal grease/tape between the CPU cooler and CPU may adhere to the CPU. Inadequately removing the CPU cooler may damage the CPU.

1-4 Installing the Memory

Read the following guidelines before you begin to install the memory:

- Make sure that the motherboard supports the memory. It is recommended that memory of the same capacity, brand, speed, and chips be used.
  (Go to GIGABYTE's website for the latest supported memory speeds and memory modules.)
- Always turn off the computer and unplug the power cord from the power outlet before installing the memory to prevent hardware damage.
- Memory modules have a foolproof design. A memory module can be installed in only one direction. If you are unable to insert the memory, switch the direction.

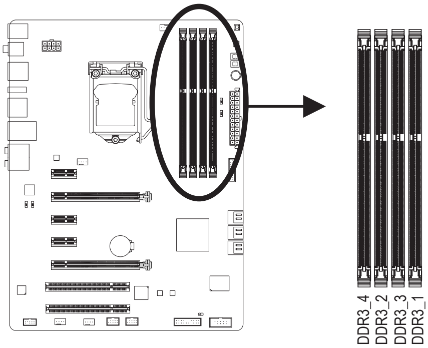
1-4-1 Dual Channel Memory Configuration

This motherboard provides four DDR3 memory sockets and supports Dual Channel Technology. After the memory is installed, the BIOS will automatically detect the specifications and capacity of the memory. Enabling Dual Channel memory mode will double the original memory bandwidth.

The four DDR3 memory sockets are divided into two channels and each channel has two memory sockets as following:

▸▸ Channel A: DDR3_2, DDR3_4

▸▸ Channel B: DDR3_1, DDR3_3



▸▸ Dual Channel Memory Configurations Table

	DDR3_4	DDR3_2	DDR3_3	DDR3_1
Two Modules	- -	DS/SS	- -	DS/SS
	DS/SS	- -	DS/SS	- -
Four Modules	DS/SS	DS/SS	DS/SS	DS/SS

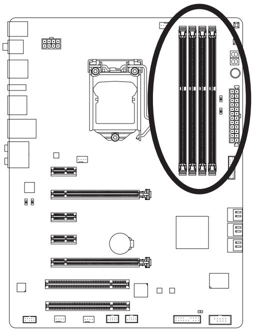
(SS=Single-Sided, DS=Double-Sided, "- -"=No Memory)

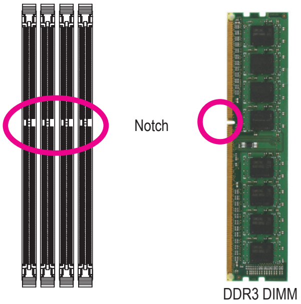
Due to CPU limitations, read the following guidelines before installing the memory in Dual Channel mode.

1. Dual Channel mode cannot be enabled if only one DDR3 memory module is installed.
2. When enabling Dual Channel mode with two or four memory modules, it is recommended that memory of the same capacity, brand, speed, and chips be used and installed in the same colored DDR3 sockets. For optimum performance, when enabling Dual Channel mode with two memory modules, we recommend that you install them in the DDR3_1 and DDR3_2 sockets.

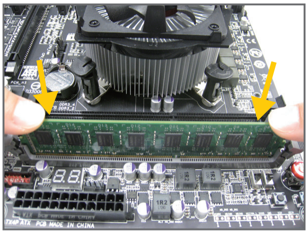
1-4-2 Installing a Memory

Before installing a memory module, make sure to turn off the computer and unplug the power cord from the power outlet to prevent damage to the memory module. DDR3 and DDR2 DIMMs are not compatible to each other or DDR DIMMs. Be sure to install DDR3 DIMMs on this motherboard.

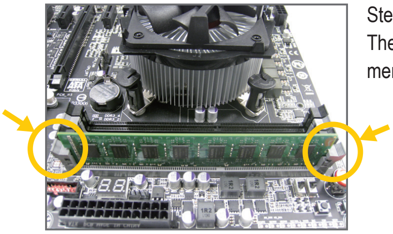




A DDR3 memory module has a notch, so it can only fit in one direction. Follow the steps below to correctly install your memory modules in the memory sockets.



Step 1:
Note the orientation of the memory module. Spread the retaining clip at the right end of the memory socket. Place the memory module on the socket. As indicated in the picture on the left, place your fingers on the top edge of the memory, push down on the memory and insert it vertically into the memory socket.

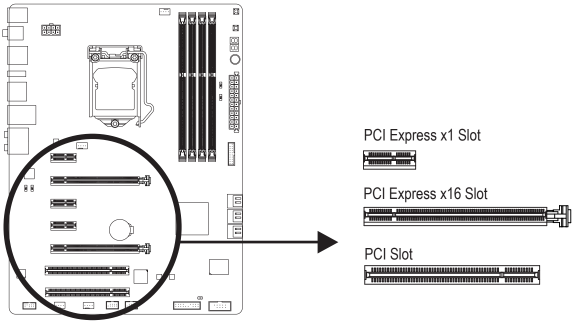


Step 2:
The clip at the right end of the socket will snap into place when the memory module is securely inserted.

1-5 Installing an Expansion Card

Read the following guidelines before you begin to install an expansion card:

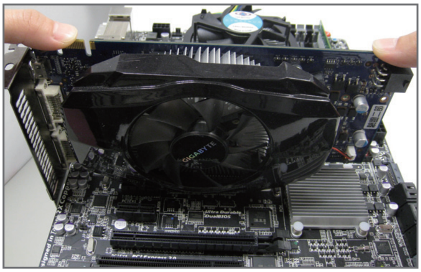
- Make sure the motherboard supports the expansion card. Carefully read the manual that came with your expansion card.
- Always turn off the computer and unplug the power cord from the power outlet before installing an expansion card to prevent hardware damage.



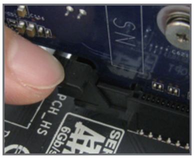
Follow the steps below to correctly install your expansion card in the expansion slot.

1. Locate an expansion slot that supports your card. Remove the metal slot cover from the chassis back panel.
2. Align the card with the slot, and press down on the card until it is fully seated in the slot.
3. Make sure the metal contacts on the card are completely inserted into the slot.
4. Secure the card's metal bracket to the chassis back panel with a screw.
5. After installing all expansion cards, replace the chassis cover(s).
6. Turn on your computer. If necessary, go to BIOS Setup to make any required BIOS changes for your expansion card(s).
7. Install the driver provided with the expansion card in your operating system.

Example: Installing and Removing a PCI Express Graphics Card:



- Installing a Graphics Card:
  Gently push down on the top edge of the card until it is fully inserted into the PCI Express slot. Make sure the card is securely seated in the slot and does not rock.



- Removing the Card:
  Gently push back on the lever on the slot and then lift the card straight out from the slot.

1-6 Setting up AMD CrossFire™/NVIDIA® SLI™ Configuration

A. System Requirements

- Windows 8.1/8/7 operating system
- A CrossFire/SLI-supported motherboard with two PCI Express x16 slots and correct driver
- CrossFire/SLI-ready graphics cards of identical brand and chip and correct driver
- CrossFire(Note)/SLI bridge connectors
- A power supply with sufficient power is recommended (Refer to the manual of your graphics cards for the power requirement)

B. Connecting the Graphics Cards

Step 1:
Observe the steps in "1-5 Installing an Expansion Card" and install CrossFire graphics cards on the PCIEX16 and PCIEX8 slots.

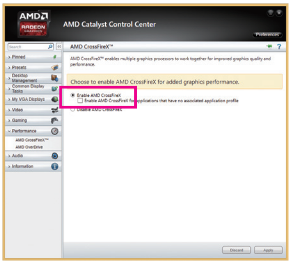
Step 2:
Insert the CrossFire(Note)/SLI bridge connectors in the CrossFire/SLI gold edge connectors on top of the cards.

Step 3:
Plug the display cable into the graphics card on the PCIEX16 slot.

C. Configuring the Graphics Card Driver

C-1. To Enable CrossFire Function

After installing the graphics card driver in the operating system, go to the **AMD Catalyst Control Center**. Browse to Performance\AMD CrossFireX™ Configuration and ensure the Enable CrossFireX™ check box is selected. And click **Apply**.


AMD
RADEON GRAPHICS
AMD Catalyst Control Center
Preferences
Search
Pinned
Presets
Desktop Management
Common Display Tasks
My VGA Displays
Video
Gaming
Performance
AMD CrossFireX™
AMD OverDrive
Audio
Information
Discard
Apply

AMD CrossFireX™

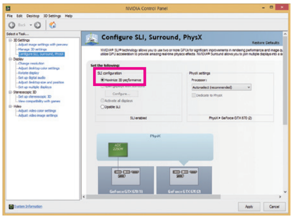
AMD CrossFireX™ enables multiple graphics processors to work together for improved graphics quality and performance.

Choose to enable AMD CrossFireX for added graphics performance.

● Enable AMD CrossFireX
☐ Enable AMD CrossFireX for applications that have no associated application profile
○ Disable AMD CrossFireX

C-2. To Enable SLI Function

After installing the graphics card driver in the operating system, go to the **NVIDIA Control Panel**. Browse to the **Configure SLI, Surround, Physx** screen and ensure **Maximize 3D performance** is enabled.


NVIDIA Control Panel
File Edit Desktop 3D Settings Help
Back
Select a Task...
3D Settings
Adjust image settings with preview
Manage 3D settings
Configure SLI, Surround, PhysX
Display
Change resolution
Adjust desktop color settings
Rotate display
Set up digital audio
Adjust desktop size and position
Set up multiple displays
Stereoscopic 3D
Set up stereoscopic 3D
View compatibility with games
Video
Adjust video color settings
Adjust video image settings
Restore Defaults
Configure...
PhysX
GeForce GTX 670 (1)
GeForce GTX 670 (2)
System Information
Apply
Cancel

Configure SLI, Surround, PhysX

Set the following:

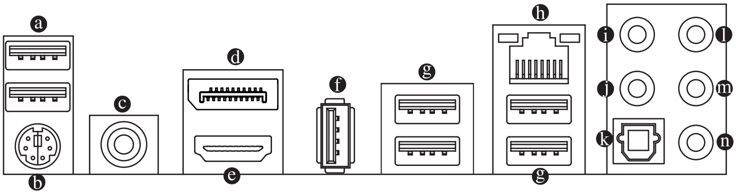
SLI configuration
● Maximize 3D performance
○ Activate all displays
○ Disable SLI
SLI enabled

PhysX settings
Processor: Auto-select (recommended)
☐ Dedicate to PhysX
PhysX ▸ GeForce GTX 670 (2)

(Note) The bridge connector(s) may be needed or not depending on your graphics cards.

Procedure and driver screen for enabling CrossFire/SLI technology may differ by graphics cards and driver version. Refer to the manual that came with your graphics cards for more information about enabling CrossFire/SLI technology.

1-7 Back Panel Connectors



ⓐ USB 2.0/1.1 Port

The USB port supports the USB 2.0/1.1 specification. Use this port for USB devices such as a USB keyboard/mouse, USB printer, USB flash drive and etc.

ⓑ PS/2 Keyboard/Mouse Port

Use this port to connect a PS/2 mouse or keyboard.

ⓒ Coaxial S/PDIF Out Connector

This connector provides digital audio out to an external audio system that supports digital coaxial audio. Before using this feature, ensure that your audio system provides a coaxial digital audio in connector.

ⓓ DisplayPort

DisplayPort delivers high quality digital imaging and audio, supporting bi-directional audio transmission. DisplayPort can support both DPCP and HDCP content protection mechanisms. You can use this port to connect your DisplayPort-supported monitor. The maximum supported resolution is 4096x2160@24Hz or 3840x2160@60Hz, but the actual resolutions supported are dependent on the monitor being used.

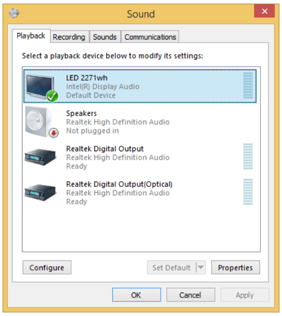
After installing the DisplayPort device, make sure the default device for sound playback is the DisplayPort device. (The item name may differ from operating system. Refer to the HDMI settings information on the previous page for the configuration dialog box.)

ⓔ HDMI Port

HDMI™ HIGH-DEFINITION MULTIMEDIA INTERFACE

The HDMI port is HDCP compliant and supports Dolby True HD and DTS HD Master Audio formats. It also supports up to 192KHz/24bit 8-channel LPCM audio output. You can use this port to connect your HDMI-supported monitor. The maximum supported resolution is 4096x2160@24 Hz or 2560x1600@60Hz, but the actual resolutions supported are dependent on the monitor being used.

After installing the HDMI device, make sure to set the default sound playback device to HDMI. (The item name may differ depending on your operating system. The screenshot below is from Windows 8.1.)



Select a playback device below to modify its settings:

LED 2271wh
Intel(R) Display Audio
Default Device

Speakers
Realtek High Definition Audio
Not plugged in

Realtek Digital Output
Realtek High Definition Audio
Ready

Realtek Digital Output(Optical)
Realtek High Definition Audio
Ready

In Windows 8.1, select Apps>Control Panel>Hardware and Sound>Sound>Playback, set Intel(R) Display Audio to the default playback device.

ⓕ USB 2.0/1.1 Port

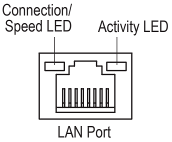
The USB port supports the USB 2.0/1.1 specification. You can connect a USB DAC to this port or use this port for USB devices such as a USB keyboard/mouse, USB printer, USB flash drive and etc.

ⓖ USB 3.0/2.0 Port

The USB 3.0 port supports the USB 3.0 specification and is compatible to the USB 2.0/1.1 specification. Use this port for USB devices such as a USB keyboard/mouse, USB printer, USB flash drive and etc.

ⓗ RJ-45 LAN Port

The Gigabit Ethernet LAN port provides Internet connection at up to 1 Gbps data rate. The following describes the states of the LAN port LEDs.



Connection/Speed LED:

State	Description
Orange	1 Gbps data rate
Green	100 Mbps data rate
Off	10 Mbps data rate

Activity LED:

State	Description
Blinking	Data transmission or receiving is occurring
Off	No data transmission or receiving is occurring

ⓘ Line In/Mic In Jack

The line in/Mic in jack. Use this audio jack for line in devices such as optical drive, walkman, microphone, etc.

ⓙ Line In

The line out jack. Use this audio jack for a 2-channel speaker. This jack can be used to connect front speakers in a 5.1-channel audio configuration.

ⓚ Optical S/PDIF Out Connector

This connector provides digital audio out to an external audio system that supports digital optical audio. Before using this feature, ensure that your audio system provides an optical digital audio in connector.

ⓛ Center/Subwoofer Speaker Out Jack

Use this audio jack to connect center/subwoofer speakers in a 5.1-channel audio configuration.

ⓜ Rear Speaker Out

Use this audio jack to connect rear speakers in a 5.1-channel audio configuration.

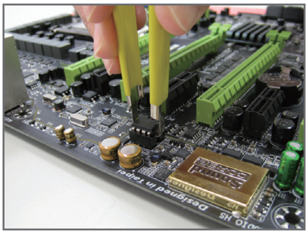
ⓝ Headphone/Speaker Out Jack

This audio output jack supports audio amplifying function. For better sound quality, it is recommended that you connect your headphone/speaker to this jack.

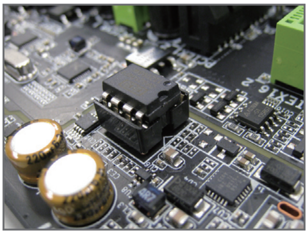
Refer to the instructions on setting up a 2/5.1-channel audio configuration in Chapter 6, "Configuring 2/5.1-Channel Audio."

- When removing the cable connected to a back panel connector, first remove the cable from your device and then remove it from the motherboard.
- When removing the cable, pull it straight out from the connector. Do not rock it side to side to prevent an electrical short inside the cable connector.

1-8 Changing the Operational Amplifier



Step 1:
Use an IC extractor to carefully grip the IC's sides and extract it from the socket.



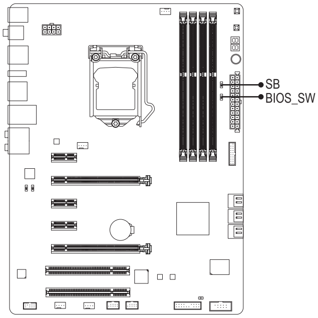
Step 2:
Align the notch on your OP chip with the notch on the socket and gently press the chip into the socket until seated.

For purchasing the IC extractor and OP Chip, please contact the local dealer.

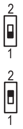
1-9 Onboard Buttons, Switches, and LEDs

BIOS Switch:

The BIOS switch (BIOS_SW) allows users to easily select a different BIOS for boot up or overclocking, helping to reduce BIOS failure during overclocking. The SB switch allows enabling or disabling of the Dual BIOS function.



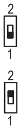
BIOS_SW



1: Main BIOS (Boot from the main BIOS)

2: Backup BIOS (Boot from the backup BIOS)

SB

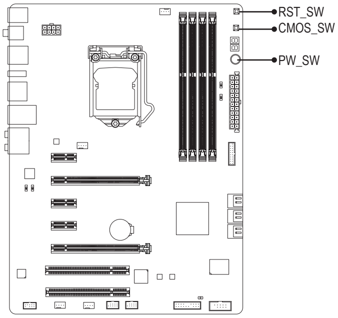


1: Dual BIOS

2: Single BIOS

Quick Buttons

This motherboard has 3 quick buttons: power button, reset button and clear CMOS button. The power button and reset button allow users to quickly turn on/off or reset the computer in an open-case environment when they want to change hardware components or conduct hardware testing. Use this button to clear the BIOS configuration and reset the CMOS values to factory defaults when needed.

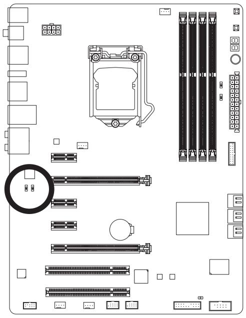


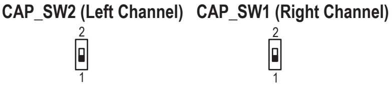
PW_SW: Power button
RST_SW: Reset button
CMOS_SW: Clear CMOS Button

- Always turn off your computer and unplug the power cord from the power outlet before clearing the CMOS values.
- NOTE: Do not use the clear CMOS button when the system is on, or the system may shutdown and data loss or damage may occur.
- After system restart, go to BIOS Setup to load factory defaults (select Load Optimized Defaults) or manually configure the BIOS settings (refer to Chapter 2, "BIOS Setup," for BIOS configurations).

Audio Gain Control Switches

The two switches allow for audio gain control for your headphone. Please make sure the two switches are set in the same position and are set according to your headphone specification.

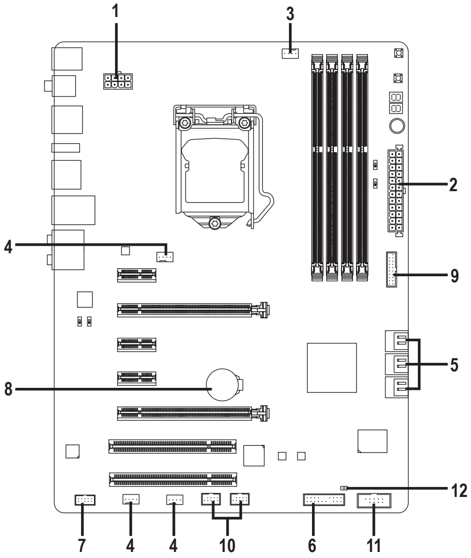




1:2.5x (Default)

2:6x

1-10 Internal Connectors



1)	ATX_12V_2X4	7)	F_AUDIO
2)	ATX	8)	BAT
3)	CPU_FAN	9)	F_USB30
4)	SYS_FAN1/2/3	10)	F_USB1/F_USB2
5)	SATA3 0/1/2/3/4/5	11)	COMA
6)	F_PANEL	12)	CLR_CMOS

Read the following guidelines before connecting external devices:

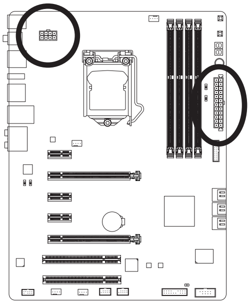
- First make sure your devices are compliant with the connectors you wish to connect.
- Before installing the devices, be sure to turn off the devices and your computer. Unplug the power cord from the power outlet to prevent damage to the devices.
- After installing the device and before turning on the computer, make sure the device cable has been securely attached to the connector on the motherboard.

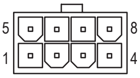
1/2) ATX_12V_2X4/ATX (2x4 12V Power Connector and 2x12 Main Power Connector)

With the use of the power connector, the power supply can supply enough stable power to all the components on the motherboard. Before connecting the power connector, first make sure the power supply is turned off and all devices are properly installed. The power connector possesses a foolproof design. Connect the power supply cable to the power connector in the correct orientation.

The 12V power connector mainly supplies power to the CPU. If the 12V power connector is not connected, the computer will not start.

To meet expansion requirements, it is recommended that a power supply that can withstand high power consumption be used (500W or greater). If a power supply is used that does not provide the required power, the result can lead to an unstable or unbootable system.

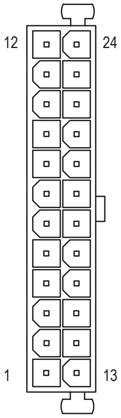




ATX_12V_2X4

ATX_12V_2X4:

Pin No.	Definition
1	GND (Only for 2x4-pin 12V)
2	GND (Only for 2x4-pin 12V)
3	GND
4	GND
5	+12V (Only for 2x4-pin 12V)
6	+12V (Only for 2x4-pin 12V)
7	+12V
8	+12V



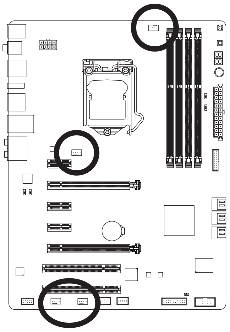
ATX

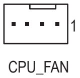
ATX:

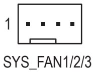
Pin No.	Definition	Pin No.	Definition
1	3.3V	13	3.3V
2	3.3V	14	-12V
3	GND	15	GND
4	+5V	16	PS_ON (soft On/Off)
5	GND	17	GND
6	+5V	18	GND
7	GND	19	GND
8	Power Good	20	-5V
9	5VSB (stand by +5V)	21	+5V
10	+12V	22	+5V
11	+12V (Only for 2x12-pin ATX)	23	+5V (Only for 2x12-pin ATX)
12	3.3V (Only for 2x12-pin ATX)	24	GND (Only for 2x12-pin ATX)

3/4) CPU_FAN/SYS_FAN1/SYS_FAN2/SYS_FAN3 (Fan Headers)

All fan headers on this motherboard are 4-pin. Most fan headers possess a foolproof insertion design. When connecting a fan cable, be sure to connect it in the correct orientation (the black connector wire is the ground wire). The speed control function requires the use of a fan with fan speed control design. For optimum heat dissipation, it is recommended that a system fan be installed inside the chassis.







CPU_FAN:

Pin No.	Definition
1	GND
2	+12V
3	Sense
4	Speed Control

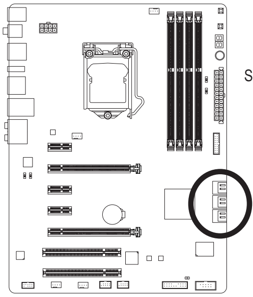
SYS_FAN1/2/3:

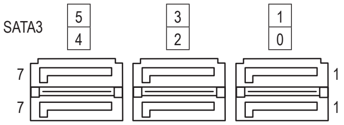
Pin No.	Definition
1	GND
2	Speed Control
3	Sense
4	VCC

- Be sure to connect fan cables to the fan headers to prevent your CPU and system from overheating. Overheating may result in damage to the CPU or the system may hang.
- These fan headers are not configuration jumper blocks. Do not place a jumper cap on the headers.

5) SATA3 0/1/2/3/4/5 (SATA 6Gb/s Connectors)

The SATA connectors conform to SATA 6Gb/s standard and are compatible with SATA 3Gb/s and SATA 1.5Gb/s standard. Each SATA connector supports a single SATA device. The Intel® Chipset supports RAID 0, RAID 1, RAID 5, and RAID 10. Refer to Chapter 3, "Configuring SATA Hard Drive(s)," for instructions on configuring a RAID array.



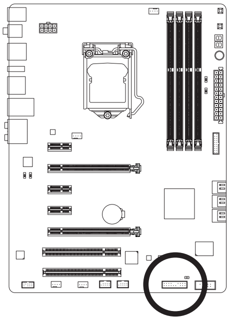


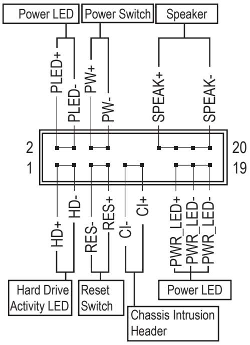
Pin No.	Definition
1	GND
2	TXP
3	TXN
4	GND
5	RXN
6	RXP
7	GND

- A RAID 0 or RAID 1 configuration requires at least two hard drives. If more than two hard drives are to be used, the total number of hard drives must be an even number.
- A RAID 5 configuration requires at least three hard drives. (The total number of hard drives does not have to be an even number.)
- A RAID 10 configuration requires four hard drives.
- To enable hot-plugging for the SATA ports, refer to Chapter 2, "BIOS Setup," "Peripherals\SATA Configuration," for more information.

6) F_PANEL (Front Panel Header)

Connect the power switch, reset switch, speaker, chassis intrusion switch/sensor and system status indicator on the chassis to this header according to the pin assignments below. Note the positive and negative pins before connecting the cables.





- **PLED/PWR_LED** (Power LED, Yellow/Purple):

System Status	LED
S0	On
S3/S4/S5	Off

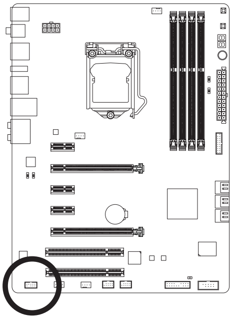
Connects to the power status indicator on the chassis front panel. The LED is on when the system is operating. The LED is off when the system is in S3/S4 sleep state or powered off (S5).

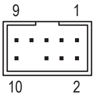
- **PW** (Power Switch, Red):
  Connects to the power switch on the chassis front panel. You may configure the way to turn off your system using the power switch (refer to Chapter 2, "BIOS Setup," "Power Management," for more information).
- **SPEAK** (Speaker, Orange):
  Connects to the speaker on the chassis front panel. The system reports system startup status by issuing a beep code. One single short beep will be heard if no problem is detected at system startup.
- **HD** (Hard Drive Activity LED, Blue):
  Connects to the hard drive activity LED on the chassis front panel. The LED is on when the hard drive is reading or writing data.
- **RES** (Reset Switch, Green):
  Connects to the reset switch on the chassis front panel. Press the reset switch to restart the computer if the computer freezes and fails to perform a normal restart.
- **CI** (Chassis Intrusion Header, Gray):
  Connects to the chassis intrusion switch/sensor on the chassis that can detect if the chassis cover has been removed. This function requires a chassis with a chassis intrusion switch/sensor.

The front panel design may differ by chassis. A front panel module mainly consists of power switch, reset switch, power LED, hard drive activity LED, speaker and etc. When connecting your chassis front panel module to this header, make sure the wire assignments and the pin assignments are matched correctly.

7) F_AUDIO (Front Panel Audio Header)

The front panel audio header supports Intel High Definition audio (HD) and AC'97 audio. You may connect your chassis front panel audio module to this header. Make sure the wire assignments of the module connector match the pin assignments of the motherboard header. Incorrect connection between the module connector and the motherboard header will make the device unable to work or even damage it.





For HD Front Panel Audio:

Pin No.	Definition
1	MIC2_L
2	GND
3	MIC2_R
4	-ACZ_DET
5	LINE2_R
6	GND
7	FAUDIO_JD
8	No Pin
9	LINE2_L
10	GND

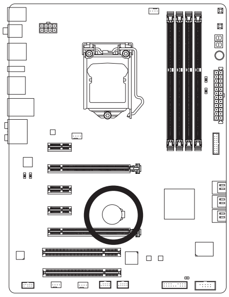
For AC'97 Front Panel Audio:

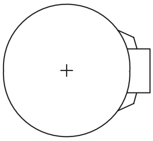
Pin No.	Definition
1	MIC
2	GND
3	MIC Power
4	NC
5	Line Out (R)
6	NC
7	NC
8	No Pin
9	Line Out (L)
10	NC

- The front panel audio header supports HD audio by default. If your chassis provides an AC'97 front panel audio module, refer to the instructions on how to activate AC'97 functionality via the audio software in Chapter 6, "Configuring 2/5.1-Channel Audio."
- Audio signals will be present on both of the front and back panel audio connections simultaneously. If you want to mute the back panel audio (only supported when using an HD front panel audio module), refer to Chapter 6, "Configuring 2/5.1-Channel Audio."
- Some chassis provide a front panel audio module that has separated connectors on each wire instead of a single plug. For information about connecting the front panel audio module that has different wire assignments, please contact the chassis manufacturer.

8) BAT (Battery)

The battery provides power to keep the values (such as BIOS configurations, date, and time information) in the CMOS when the computer is turned off. Replace the battery when the battery voltage drops to a low level, or the CMOS values may not be accurate or may be lost.





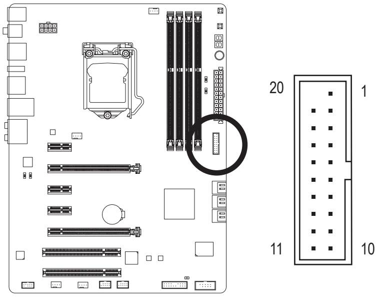
You may clear the CMOS values by removing the battery:

1. Turn off your computer and unplug the power cord.
2. Gently remove the battery from the battery holder and wait for one minute. (Or use a metal object like a screwdriver to touch the positive and negative terminals of the battery holder, making them short for 5 seconds.)
3. Replace the battery.
4. Plug in the power cord and restart your computer.

- Always turn off your computer and unplug the power cord before replacing the battery.
- Replace the battery with an equivalent one. Danger of explosion if the battery is replaced with an incorrect model.
- Contact the place of purchase or local dealer if you are not able to replace the battery by yourself or uncertain about the battery model.
- When installing the battery, note the orientation of the positive side (+) and the negative side (-) of the battery (the positive side should face up).
- Used batteries must be handled in accordance with local environmental regulations.

9) F_USB30 (USB 3.0/2.0 Header)

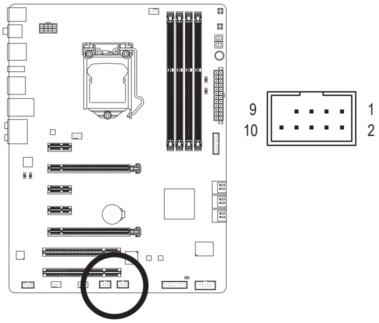
The header conforms to USB 3.0/2.0 specification and can provide two USB ports. For purchasing the optional 3.5" front panel that provides two USB 3.0/2.0 ports, please contact the local dealer.



Pin No.	Definition	Pin No.	Definition
1	VBUS	11	D2+
2	SSRX1-	12	D2-
3	SSRX1+	13	GND
4	GND	14	SSTX2+
5	SSTX1-	15	SSTX2-
6	SSTX1+	16	GND
7	GND	17	SSRX2+
8	D1-	18	SSRX2-
9	D1+	19	VBUS
10	NC	20	No Pin

10) F_USB1/F_USB2 (USB 2.0/1.1 Headers)

The headers conform to USB 2.0/1.1 specification. Each USB header can provide two USB ports via an optional USB bracket. For purchasing the optional USB bracket, please contact the local dealer.

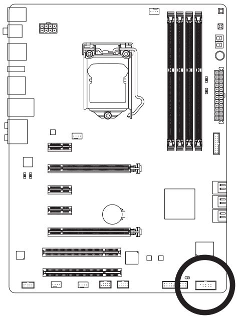


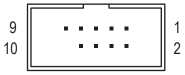
Pin No.	Definition
1	Power (5V)
2	Power (5V)
3	USB DX-
4	USB DY-
5	USB DX+
6	USB DY+
7	GND
8	GND
9	No Pin
10	NC

- Do not plug the IEEE 1394 bracket (2x5-pin) cable into the USB 2.0/1.1 header.
- Prior to installing the USB bracket, be sure to turn off your computer and unplug the power cord from the power outlet to prevent damage to the USB bracket.

11) COMA (Serial Port Header)

The COM header can provide one serial port via an optional COM port cable. For purchasing the optional COM port cable, please contact the local dealer.

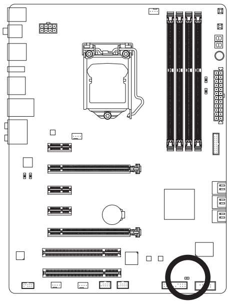




Pin No.	Definition
1	NDCD-
2	NSIN
3	NSOUT
4	NDTR-
5	GND
6	NDSR-
7	NRTS-
8	NCTS-
9	NRI-
10	No Pin

12) CLR_CMOS (Clear CMOS Jumper)

Use this jumper to clear the BIOS configuration and reset the CMOS values to factory defaults. To clear the CMOS values, use a metal object like a screwdriver to touch the two pins for a few seconds.



Open: Normal

Short: Clear CMOS Values

- Always turn off your computer and unplug the power cord from the power outlet before clearing the CMOS values.
- After system restart, go to BIOS Setup to load factory defaults (select Load Optimized Defaults) or manually configure the BIOS settings (refer to Chapter 2, "BIOS Setup," for BIOS configurations).

Chapter 2 BIOS Setup

BIOS (Basic Input and Output System) records hardware parameters of the system in the CMOS on the motherboard. Its major functions include conducting the Power-On Self-Test (POST) during system startup, saving system parameters and loading operating system, etc. BIOS includes a BIOS Setup program that allows the user to modify basic system configuration settings or to activate certain system features.

When the power is turned off, the battery on the motherboard supplies the necessary power to the CMOS to keep the configuration values in the CMOS.

To access the BIOS Setup program, press the <Delete> key during the POST when the power is turned on.

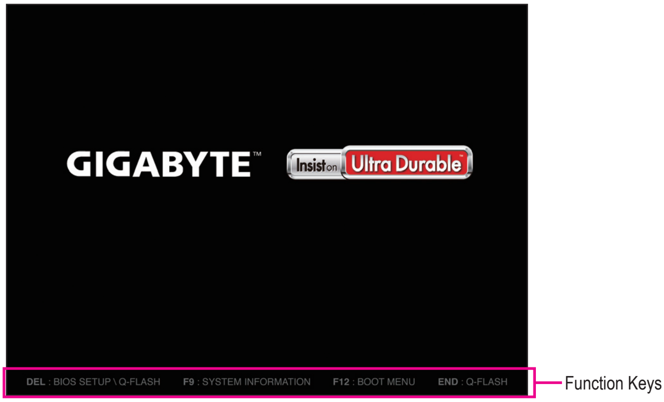
To upgrade the BIOS, use either the GIGABYTE Q-Flash or @BIOS utility.
- Q-Flash allows the user to quickly and easily upgrade or back up BIOS without entering the operating system.
- @BIOS is a Windows-based utility that searches and downloads the latest version of BIOS from the Internet and updates the BIOS.

For instructions on using the Q-Flash and @BIOS utilities, refer to Chapter 5, "BIOS Update Utilities."

- Because BIOS flashing is potentially risky, if you do not encounter problems using the current version of BIOS, it is recommended that you not flash the BIOS. To flash the BIOS, do it with caution. Inadequate BIOS flashing may result in system malfunction.
- It is recommended that you not alter the default settings (unless you need to) to prevent system instability or other unexpected results. Inadequately altering the settings may result in system's failure to boot. If this occurs, try to clear the CMOS values and reset the board to default values. (Refer to the "Load Optimized Defaults" section in this chapter or introductions of the battery/clear CMOS jumper in Chapter 1 for how to clear the CMOS values.)

2-1 Startup Screen

The following startup Logo screen will appear when the computer boots.



DEL : BIOS SETUP \ Q-FLASH F9 : SYSTEM INFORMATION F12 : BOOT MENU END : Q-FLASH

Function Keys:

<DEL>: BIOS SETUP\Q-FLASH

Press the <Delete> key to enter BIOS Setup or to access the Q-Flash utility in BIOS Setup.

<F9>: SYSTEM INFORMATION

Press the <F9> key to display your system information.

<F12>: BOOT MENU

Boot Menu allows you to set the first boot device without entering BIOS Setup. In Boot Menu, use the up arrow key <↑> or the down arrow key <↓> to select the first boot device, then press <Enter> to accept. The system will boot from the device immediately.

Note: The setting in Boot Menu is effective for one time only. After system restart, the device boot order will still be based on BIOS Setup settings.

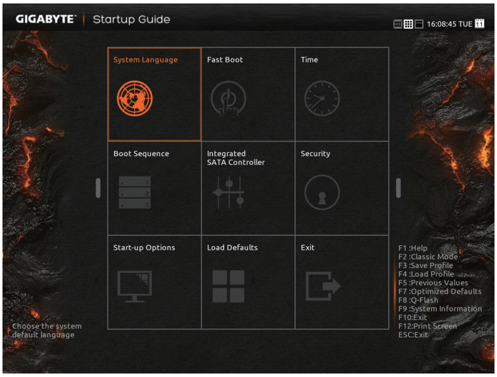
<END>: Q-FLASH

Press the <End> key to access the Q-Flash utility directly without having to enter BIOS Setup first.

2-2 The Main Menu

A. Startup Guide (Default)

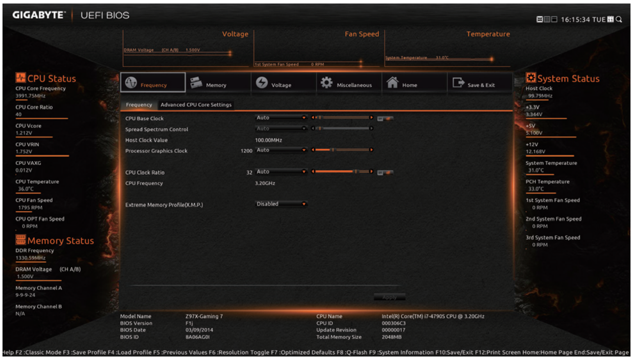
The Startup Guide screen simplifies conventional complicated BIOS setup menus and presents only the most frequently used options in the easy-to-use interface. It helps first-time users to perform basic system setups more quickly and easily.


GIGABYTE
Startup Guide
16:08:45 TUE
System Language
Fast Boot
Time
Boot Sequence
Integrated SATA Controller
Security
Start-up Options
Load Defaults
Exit
F1 :Help
F2 :Classic Mode
F3 :Save Profile
F4 :Load Profile
F5 :Previous Values
F7 :Optimized Defaults
F8 :Q-Flash
F9 :System Information
F10:Exit
F12:Print Screen
ESC:Exit

Choose the system default language

B. ST Mode (Smart Tweak Mode)

Differing from traditional UEFI interface, the ST Mode provides a fancy and user-friendly BIOS environment where users can easily point and click through various settings and make adjustments for optimum performance. In ST Mode, you can use your mouse to move through the option menus for quick configuration or press <F2> to switch to the traditional BIOS Setup screen.


GIGABYTE
UEFI BIOS
16:15:34 TUE
Voltage
Fan Speed
Temperature
DRAM Voltage (CH A/B) 1.500V
1st System Fan Speed 0 RPM
System Temperature 31.0°C
Frequency
Memory
Voltage
Miscellaneous
Home
Save & Exit
Frequency
Advanced CPU Core Settings
Apply
Help F2 :Classic Mode F3 :Save Profile F4 :Load Profile F5 :Previous Values F6 :Resolution Toggle F7 :Optimized Defaults F8 :Q-Flash F9 :System Information F10:Save/Exit F12:Print Screen Home:Home Page End:Save/Exit Page

CPU Status
CPU Core Frequency 3991.75MHz
CPU Core Ratio 40
CPU Vcore 1.212V
CPU VRIN 1.752V
CPU VAXG 0.012V
CPU Temperature 36.0°C
CPU Fan Speed 1795 RPM
CPU OPT Fan Speed 0 RPM

Memory Status
DDR Frequency 1330.59MHz
DRAM Voltage (CH A/B) 1.500V
Memory Channel A 9-9-9-24
Memory Channel B N/A

CPU Base Clock Auto
Spread Spectrum Control Auto
Host Clock Value 100.00MHz
Processor Graphics Clock 1200 Auto
CPU Clock Ratio 32 Auto
CPU Frequency 3.20GHz
Extreme Memory Profile(X.M.P.) Disabled

System Status
Host Clock 99.79MHz
+3.3V 3.344V
+5V 5.100V
+12V 12.168V
System Temperature 31.0°C
PCH Temperature 33.0°C
1st System Fan Speed 0 RPM
2nd System Fan Speed 0 RPM
3rd System Fan Speed 0 RPM

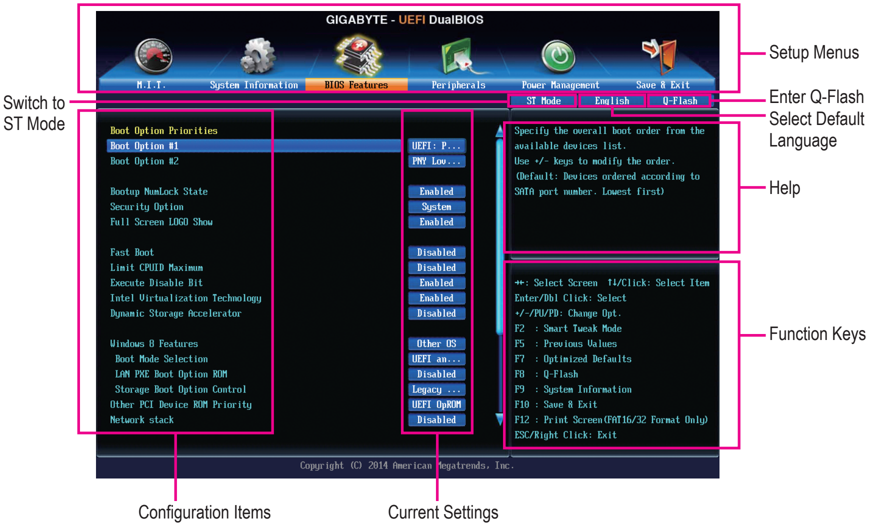
Model Name Z97X-Gaming 7
BIOS Version F1j
BIOS Date 03/09/2014
BIOS ID 8A06AG0I
CPU Name Intel(R) Core(TM) i7-4790S CPU @ 3.20GHz
CPU ID 000306C3
Update Revision 00000017
Total Memory Size 2048MB

- When the system is not stable as usual, select the **Load Optimized Defaults** item to set your system to its defaults.
- The BIOS Setup menus described in this chapter are for reference only and may differ by BIOS version.

B. Classic Setup

Classic Setup is the conventional BIOS Setup interface where you can press the arrow keys on your keyboard to move among the items and press <Enter> to accept or enter a sub-menu. Or you can use your mouse to select the item you want.

(Sample BIOS Version: F3)


GIGABYTE - UEFI DualBIOS
M.I.T.
System Information
BIOS Features
Peripherals
Power Management
Save & Exit
ST Mode
English
Q-Flash
Setup Menus
Switch to ST Mode
Enter Q-Flash
Select Default Language
Help
Function Keys
Configuration Items
Current Settings
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```
Boot Option Priorities
Boot Option #1                          UEFI: P...
Boot Option #2                          PNY Lov...

Bootup NumLock State                    Enabled
Security Option                         System
Full Screen LOGO Show                   Enabled

Fast Boot                               Disabled
Limit CPUID Maximum                     Disabled
Execute Disable Bit                     Enabled
Intel Virtualization Technology         Enabled
Dynamic Storage Accelerator             Disabled

Windows 8 Features                      Other OS
 Boot Mode Selection                    UEFI an...
 LAN PXE Boot Option ROM                Disabled
 Storage Boot Option Control            Legacy ...
Other PCI Device ROM Priority           UEFI OpROM
Network stack                           Disabled
```

```
Specify the overall boot order from the
available devices list.
Use +/- keys to modify the order.
(Default: Devices ordered according to
SATA port number. Lowest first)
```

```
→←: Select Screen  ↑↓/Click: Select Item
Enter/Dbl Click: Select
+/-/PU/PD: Change Opt.
F2  : Smart Tweak Mode
F5  : Previous Values
F7  : Optimized Defaults
F8  : Q-Flash
F9  : System Information
F10 : Save & Exit
F12 : Print Screen(FAT16/32 Format Only)
ESC/Right Click: Exit
```

Classic Setup Function Keys

<←><→>	Move the selection bar to select a setup menu
<↑><↓>	Move the selection bar to select an configuration item on a menu
<Enter>	Execute command or enter a menu
<+>/<Page Up>	Increase the numeric value or make changes
<->/<Page Down>	Decrease the numeric value or make changes
<F2>	Switch to ST Mode or Startup Guide screen.
<F5>	Restore the previous BIOS settings for the current submenus
<F7>	Load the Optimized BIOS default settings for the current submenus
<F8>	Access the Q-Flash utility
<F9>	Display system information
<F10>	Save all the changes and exit the BIOS Setup program
<F12>	Capture the current screen as an image and save it to your USB drive
<Esc>	Main Menu: Exit the BIOS Setup program Submenus: Exit current submenu

BIOS Setup Menus

- **M.I.T.**

  Use this menu to configure the clock, frequency, and voltages of your CPU and memory, etc. Or check the system/CPU temperatures, voltages, and fan speeds.

- **System Information**

  Use this menu to configure the default language used by the BIOS and system time and date.

- **BIOS Features**

  Use this menu to configure the device boot order and advanced features available on the CPU.

- **Peripherals**

  Use this menu to configure all peripheral devices, such as SATA, USB, integrated audio, and integrated LAN, etc.

- **Power Management**

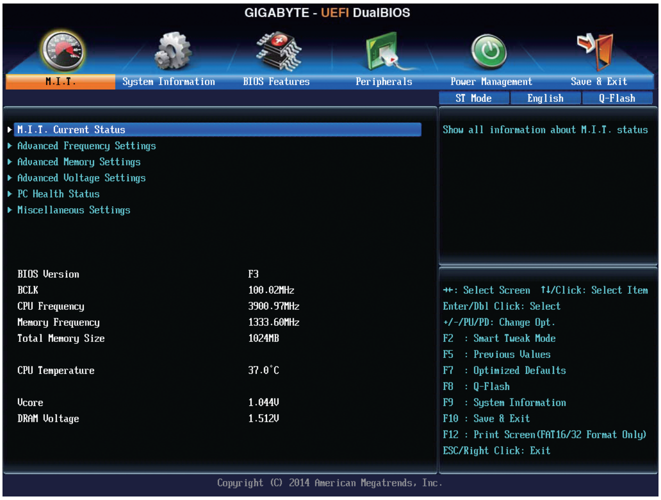
  Use this menu to configure all the power-saving functions.

- **Save & Exit**

  Save all the changes made in the BIOS Setup program to the CMOS and exit BIOS Setup. You can save the current BIOS settings to a profile or load optimized defaults for optimal-performance system operations.

- When the system is not stable as usual, select the **Load Optimized Defaults** item to set your system to its defaults.
- The BIOS Setup menus described in this chapter are for reference only and may differ by BIOS version.

2-3 M.I.T.



```
▸ M.I.T. Current Status
▸ Advanced Frequency Settings
▸ Advanced Memory Settings
▸ Advanced Voltage Settings
▸ PC Health Status
▸ Miscellaneous Settings

BIOS Version            F3
BCLK                    100.02MHz
CPU Frequency           3900.97MHz
Memory Frequency        1333.60MHz
Total Memory Size       1024MB

CPU Temperature         37.0°C

Vcore                   1.044V
DRAM Voltage            1.512V
```

```
Show all information about M.I.T. status

→←: Select Screen  ↑↓/Click: Select Item
Enter/Dbl Click: Select
+/-/PU/PD: Change Opt.
F2  : Smart Tweak Mode
F5  : Previous Values
F7  : Optimized Defaults
F8  : Q-Flash
F9  : System Information
F10 : Save & Exit
F12 : Print Screen(FAT16/32 Format Only)
ESC/Right Click: Exit
```

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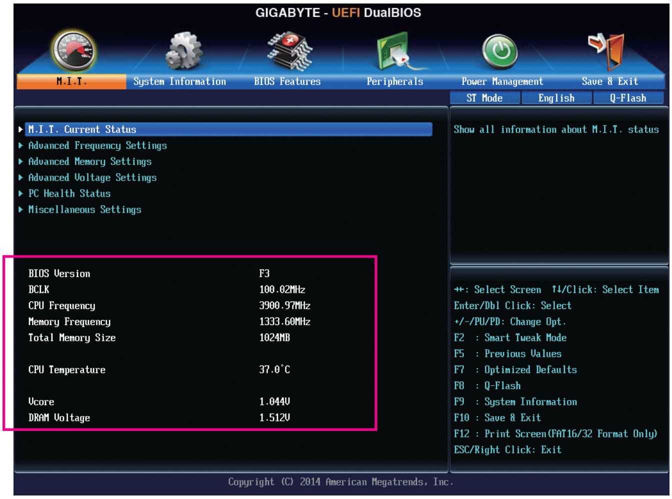
Whether the system will work stably with the overclock/overvoltage settings you made is dependent on your overall system configurations. Incorrectly doing overclock/overvoltage may result in damage to CPU, chipset, or memory and reduce the useful life of these components. This page is for advanced users only and we recommend you not to alter the default settings to prevent system instability or other unexpected results. (Inadequately altering the settings may result in system's failure to boot. If this occurs, clear the CMOS values and reset the board to default values.)


GIGABYTE - UEFI DualBIOS
M.I.T. | System Information | BIOS Features | Peripherals | Power Management | Save & Exit
ST Mode | English | Q-Flash

▸ M.I.T. Current Status
▸ Advanced Frequency Settings
▸ Advanced Memory Settings
▸ Advanced Voltage Settings
▸ PC Health Status
▸ Miscellaneous Settings

BIOS Version F3
BCLK 100.02MHz
CPU Frequency 3900.97MHz
Memory Frequency 1333.60MHz
Total Memory Size 1024MB
CPU Temperature 37.0°C
Vcore 1.044V
DRAM Voltage 1.512V

Show all information about M.I.T. status
→←: Select Screen ↑↓/Click: Select Item
Enter/Dbl Click: Select
+/-/PU/PD: Change Opt.
F2 : Smart Tweak Mode
F5 : Previous Values
F7 : Optimized Defaults
F8 : Q-Flash
F9 : System Information
F10 : Save & Exit
F12 : Print Screen(FAT16/32 Format Only)
ESC/Right Click: Exit
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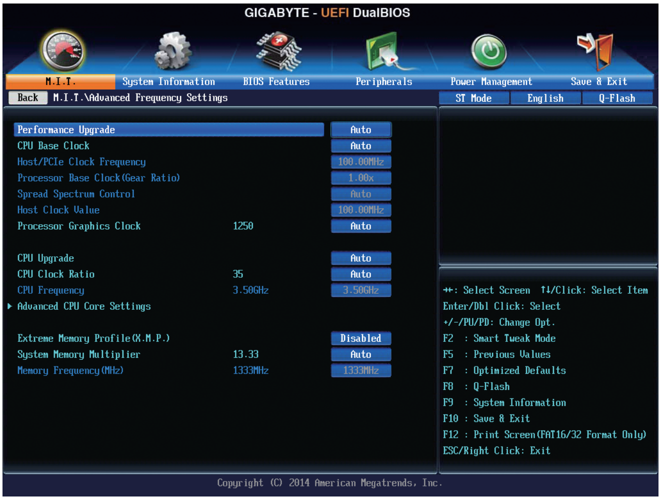
This section provides information on the BIOS version, CPU base clock, CPU frequency, memory frequency, total memory size, CPU temperature, Vcore, and memory voltage.

▸ M.I.T. Current Status

This screen provides information on CPU/memory frequencies/parameters.

Advanced Frequency Settings



```
M.I.T.\Advanced Frequency Settings

Performance Upgrade                            Auto
CPU Base Clock                                 Auto
Host/PCIe Clock Frequency                      100.00MHz
Processor Base Clock(Gear Ratio)               1.00x
Spread Spectrum Control                        Auto
Host Clock Value                               100.00MHz
Processor Graphics Clock           1250        Auto

CPU Upgrade                                    Auto
CPU Clock Ratio                    35          Auto
CPU Frequency                      3.50GHz     3.50GHz
▸ Advanced CPU Core Settings

Extreme Memory Profile(X.M.P.)                 Disabled
System Memory Multiplier           13.33       Auto
Memory Frequency(MHz)              1333MHz     1333MHz

→←: Select Screen  ↑↓/Click: Select Item
Enter/Dbl Click: Select
+/-/PU/PD: Change Opt.
F2  : Smart Tweak Mode
F5  : Previous Values
F7  : Optimized Defaults
F8  : Q-Flash
F9  : System Information
F10 : Save & Exit
F12 : Print Screen(FAT16/32 Format Only)
ESC/Right Click: Exit

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```

☞ Performance Upgrade (Note)

Provides you with five different overclocking configurations. Options are: 20% Upgrade, 40% Upgrade, 60% Upgrade, 80% Upgrade, 100% Upgrade. (Default: Auto)

☞ CPU Base Clock

Allows you to manually set the CPU base clock in 0.01 MHz increments. (Default: Auto)

Important: It is highly recommended that the CPU frequency be set in accordance with the CPU specifications.

☞ Host/PCIe Clock Frequency (Note)

Allows you to manually set the host clock frequency (which controls CPU, PCIe, and memory frequencies) in 0.01 MHz increments.

This item is configurable only when **CPU Base Clock** is set to **Manual**.

☞ Processor Base Clock (Gear Ratio) (Note)

Allows you to configure the Processor Base Clock by multiplying the **Host/PCIe Clock Frequency** by several preset host clock multipliers. This item is configurable only when **CPU Base Clock** is set to **Manual**.

☞ Spread Spectrum Control (Note)

Enables or disables CPU/PCIe Spread Spectrum. (Default: Auto)

☞ Host Clock Value

This value is determined by multiplying the **Host/PCIe Clock Frequency** value by the **Processor Base Clock (Gear Ratio)** value.

☞ Processor Graphics Clock

Allows you to set the onboard graphics clock. The adjustable range is from 400 MHz to 4000 MHz. (Default: Auto)

☞ CPU Upgrade (Note)

Allows you to set the CPU frequency. Options may vary depending on the CPU being used. (Default: Auto)

(Note) This item is present only when you install a CPU that supports this feature. For more information about Intel® CPUs' unique features, please visit Intel's website.

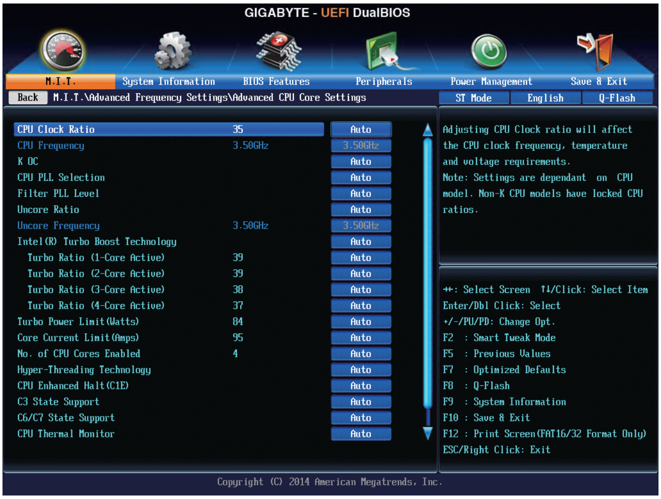
☞ **CPU Clock Ratio**

Allows you to alter the clock ratio for the installed CPU. The adjustable range is dependent on the CPU being installed.

☞ **CPU Frequency**

Displays the current operating CPU frequency.

Advanced CPU Core Settings



```
M.I.T.\Advanced Frequency Settings\Advanced CPU Core Settings

CPU Clock Ratio                          35          Auto
CPU Frequency                            3.50GHz     3.50GHz
K OC                                                 Auto
CPU PLL Selection                                    Auto
Filter PLL Level                                     Auto
Uncore Ratio                                         Auto
Uncore Frequency                         3.50GHz     3.50GHz
Intel(R) Turbo Boost Technology                      Auto
  Turbo Ratio (1-Core Active)            39          Auto
  Turbo Ratio (2-Core Active)            39          Auto
  Turbo Ratio (3-Core Active)            38          Auto
  Turbo Ratio (4-Core Active)            37          Auto
Turbo Power Limit(Watts)                 84          Auto
Core Current Limit(Amps)                 95          Auto
No. of CPU Cores Enabled                 4           Auto
Hyper-Threading Technology                           Auto
CPU Enhanced Halt(C1E)                               Auto
C3 State Support                                     Auto
C6/C7 State Support                                  Auto
CPU Thermal Monitor                                  Auto

Adjusting CPU Clock ratio will affect
the CPU clock frequency, temperature
and voltage requirements.
Note: Settings are dependant  on  CPU
model. Non-K CPU models have locked CPU
ratios.

→←: Select Screen  ↑↓/Click: Select Item
Enter/Dbl Click: Select
+/-/PU/PD: Change Opt.
F2  : Smart Tweak Mode
F5  : Previous Values
F7  : Optimized Defaults
F8  : Q-Flash
F9  : System Information
F10 : Save & Exit
F12 : Print Screen(FAT16/32 Format Only)
ESC/Right Click: Exit

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```

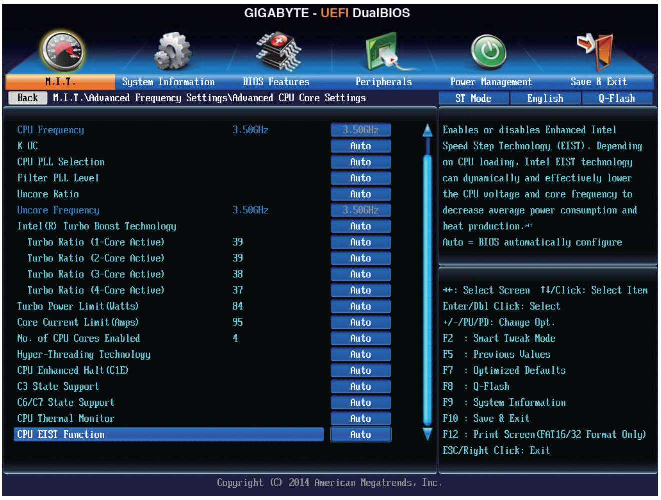

```
M.I.T.\Advanced Frequency Settings\Advanced CPU Core Settings

CPU Frequency                            3.50GHz     3.50GHz
K OC                                                 Auto
CPU PLL Selection                                    Auto
Filter PLL Level                                     Auto
Uncore Ratio                                         Auto
Uncore Frequency                         3.50GHz     3.50GHz
Intel(R) Turbo Boost Technology                      Auto
  Turbo Ratio (1-Core Active)            39          Auto
  Turbo Ratio (2-Core Active)            39          Auto
  Turbo Ratio (3-Core Active)            38          Auto
  Turbo Ratio (4-Core Active)            37          Auto
Turbo Power Limit(Watts)                 84          Auto
Core Current Limit(Amps)                 95          Auto
No. of CPU Cores Enabled                 4           Auto
Hyper-Threading Technology                           Auto
CPU Enhanced Halt(C1E)                               Auto
C3 State Support                                     Auto
C6/C7 State Support                                  Auto
CPU Thermal Monitor                                  Auto
CPU EIST Function                                    Auto

Enables or disables Enhanced Intel
Speed Step Technology (EIST). Depending
on CPU loading, Intel EIST technology
can dynamically and effectively lower
the CPU voltage and core frequency to
decrease average power consumption and
heat production.
Auto = BIOS automatically configure

→←: Select Screen  ↑↓/Click: Select Item
Enter/Dbl Click: Select
+/-/PU/PD: Change Opt.
F2  : Smart Tweak Mode
F5  : Previous Values
F7  : Optimized Defaults
F8  : Q-Flash
F9  : System Information
F10 : Save & Exit
F12 : Print Screen(FAT16/32 Format Only)
ESC/Right Click: Exit

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```

☞ **CPU Clock Ratio, CPU Frequency**

The settings above are synchronous to those under the same items on the **Advanced Frequency Settings** menu.

☞ **K OC** (Note)

Allows for increased performance by using certain CPUs. (Default: Auto)

☞ **CPU PLL Selection**

Allows you to set the CPU PLL. **Auto** lets the BIOS automatically configure this setting. (Default: Auto)

☞ **Filter PLL Level**

Allows you to set the Filter PLL. **Auto** lets the BIOS automatically configure this setting. (Default: Auto)

☞ **Uncore Ratio**

Allows you to set the CPU Uncore ratio. The adjustable range is dependent on the CPU being used.

☞ **Uncore Frequency**

Displays the current CPU Uncore frequency.

☞ **Intel(R) Turbo Boost Technology** (Note)

Allows you to determine whether to enable the Intel CPU Turbo Boost technology. **Auto** lets the BIOS automatically configure this setting. (Default: Auto)

☞ **Turbo Ratio (1-Core Active~4-Core Active)** (Note)

Allows you to set the CPU Turbo ratios for different number of active cores. **Auto** sets the CPU Turbo ratios according to the CPU specifications. (Default: Auto)

☞ **Turbo Power Limit (Watts)**

Allows you to set a power limit for CPU Turbo mode. When the CPU power consumption exceeds the specified power limit, the CPU will automatically reduce the core frequency in order to reduce the power. **Auto** sets the power limit according to the CPU specifications. (Default: Auto)

☞ **Core Current Limit (Amps)**

Allows you to set a current limit for CPU Turbo mode. When the CPU current exceeds the specified current limit, the CPU will automatically reduce the core frequency in order to reduce the current. **Auto** sets the power limit according to the CPU specifications. (Default: Auto)

☞ **No. of CPU Cores Enabled** (Note)

Allows you to select the number of CPU cores to enable in an Intel® multi-core CPU (the number of CPU cores may vary by CPU). **Auto** lets the BIOS automatically configure this setting. (Default: Auto)

☞ **Hyper-Threading Technology** (Note)

Allows you to determine whether to enable multi-threading technology when using an Intel® CPU that supports this function. This feature only works for operating systems that support multi-processor mode. **Auto** lets the BIOS automatically configure this setting. (Default: Auto)

☞ **CPU Enhanced Halt (C1E)** (Note)

Enables or disables Intel® CPU Enhanced Halt (C1E) function, a CPU power-saving function in system halt state. When enabled, the CPU core frequency and voltage will be reduced during system halt state to decrease power consumption. **Auto** lets the BIOS automatically configure this setting. (Default: Auto)

☞ **C3 State Support** (Note)

Allows you to determine whether to let the CPU enter C3 mode in system halt state. When enabled, the CPU core frequency and voltage will be reduced during system halt state to decrease power consumption. The C3 state is a more enhanced power-saving state than C1. **Auto** lets the BIOS automatically configure this setting. (Default: Auto)

☞ **C6/C7 State Support** (Note)

Allows you to determine whether to let the CPU enter C6/C7 mode in system halt state. When enabled, the CPU core frequency and voltage will be reduced during system halt state to decrease power consumption.

(Note) This item is present only when you install a CPU that supports this feature. For more information about Intel® CPUs' unique features, please visit Intel's website.

The C6/C7 state is a more enhanced power-saving state than C3. **Auto** lets the BIOS automatically configure this setting. (Default: Auto)

☞ CPU Thermal Monitor (Note 1)

Enables or disables Intel® Thermal Monitor function, a CPU overheating protection function. When enabled, the CPU core frequency and voltage will be reduced when the CPU is overheated. **Auto** lets the BIOS automatically configure this setting. (Default: Auto)

☞ CPU EIST Function (Note 1)

Enables or disables Enhanced Intel® Speed Step Technology (EIST). Depending on CPU loading, Intel EIST technology can dynamically and effectively lower the CPU voltage and core frequency to decrease average power consumption and heat production. **Auto** lets the BIOS automatically configure this setting. (Default: Auto)

☞ Extreme Memory Profile (X.M.P.) (Note 2)

Allows the BIOS to read the SPD data on XMP memory module(s) to enhance memory performance when enabled.

⏩ Disabled	Disables this function. (Default)
⏩ Profile1	Uses Profile 1 settings.
⏩ Profile2 (Note 2)	Uses Profile 2 settings.

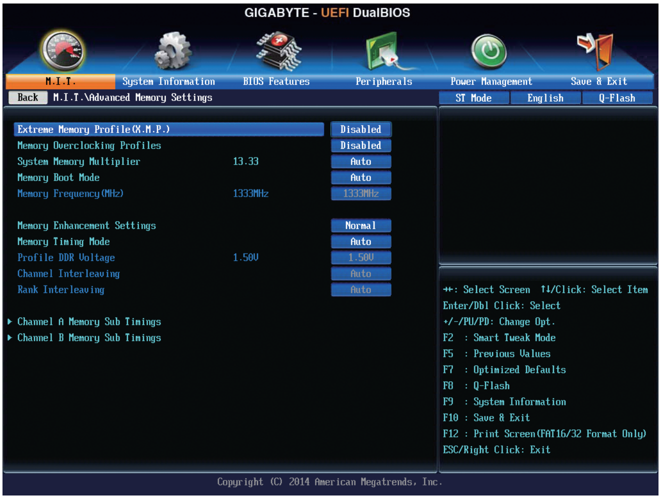
☞ System Memory Multiplier

Allows you to set the system memory multiplier. **Auto** sets memory multiplier according to memory SPD data. (Default: Auto)

☞ Memory Frequency (MHz)

The first memory frequency value is the normal operating frequency of the memory being used; the second is the memory frequency that is automatically adjusted according to the **System Memory Multiplier** settings.

▶ Advanced Memory Settings



```
Extreme Memory Profile(X.M.P.)                    Disabled
Memory Overclocking Profiles                      Disabled
System Memory Multiplier          13.33           Auto
Memory Boot Mode                                  Auto
Memory Frequency(MHz)             1333MHz         1333MHz

Memory Enhancement Settings                       Normal
Memory Timing Mode                                Auto
Profile DDR Voltage               1.50V           1.50V
Channel Interleaving                              Auto
Rank Interleaving                                 Auto

▸ Channel A Memory Sub Timings
▸ Channel B Memory Sub Timings
```

```
→←: Select Screen  ↑↓/Click: Select Item
Enter/Dbl Click: Select
+/-/PU/PD: Change Opt.
F2  : Smart Tweak Mode
F5  : Previous Values
F7  : Optimized Defaults
F8  : Q-Flash
F9  : System Information
F10 : Save & Exit
F12 : Print Screen(FAT16/32 Format Only)
ESC/Right Click: Exit
```

(Note 1) This item is present only when you install a CPU that supports this feature. For more information about Intel® CPUs' unique features, please visit Intel's website.

(Note 2) This item is present only when you install a CPU and a memory module that support this feature.

Extreme Memory Profile (X.M.P.) (Note), System Memory Multiplier, Memory Frequency(MHz)

The settings above are synchronous to those under the same items on the **Advanced Frequency Settings** menu.

Memory Overclocking Profiles (Note)

Allows you to set the memory frequency. Options may vary depending on the memory being used. (Default: Disabled)

Memory Boot Mode (Note)

Provides memory detection and training methods.

▸▸ Auto	Lets the BIOS automatically configure this setting. (Default)
▸▸ Enable Fast Boot	Skip memory detection and training in some specific criteria for faster memory boot.
▸▸ Disable Fast Boot	Detect and train memory at every single boot.

Memory Enhancement Settings

Provides three different memory performance enhancement settings: Normal (basic performance), Enhanced Stability, and Enhanced Performance. (Default: Normal)

Memory Timing Mode

Manual and **Advanced Manual** allows the **Channel Interleaving**, **Rank Interleaving**, and memory timing settings below to be configurable. Options are: Auto (default), Manual, Advanced Manual.

Profile DDR Voltage

When using a non-XMP memory module or **Extreme Memory Profile (X.M.P.)** is set to **Disabled**, the value is displayed according to your memory specification. When Extreme Memory Profile (X.M.P.) is set to **Profile1** or **Profile2**, the value is displayed according to the SPD data on the XMP memory.

Channel Interleaving

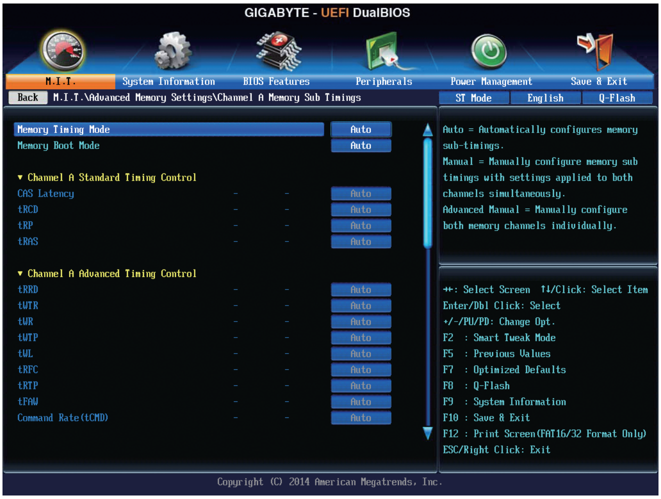
Enables or disables memory channel interleaving. **Enabled** allows the system to simultaneously access different channels of the memory to increase memory performance and stability. **Auto** lets the BIOS automatically configure this setting. (Default: Auto)

Rank Interleaving

Enables or disables memory rank interleaving. **Enabled** allows the system to simultaneously access different ranks of the memory to increase memory performance and stability. **Auto** lets the BIOS automatically configure this setting. (Default: Auto)

(Note) This item is present only when you install a CPU and a memory module that support this feature.

Channel A/B Memory Sub Timings


GIGABYTE - UEFI DualBIOS
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Save & Exit
Back
M.I.T.\Advanced Memory Settings\Channel A Memory Sub Timings
ST Mode
English
Q-Flash
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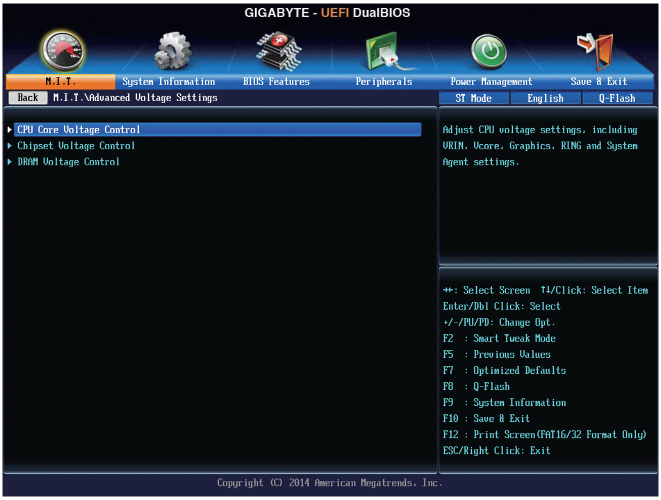
```
Memory Timing Mode                          Auto
Memory Boot Mode                            Auto

▼ Channel A Standard Timing Control
CAS Latency                  -      -       Auto
tRCD                         -      -       Auto
tRP                          -      -       Auto
tRAS                         -      -       Auto

▼ Channel A Advanced Timing Control
tRRD                         -      -       Auto
tWTR                         -      -       Auto
tWR                          -      -       Auto
tWTP                         -      -       Auto
tWL                          -      -       Auto
tRFC                         -      -       Auto
tRTP                         -      -       Auto
tFAW                         -      -       Auto
Command Rate(tCMD)           -      -       Auto
```

```
Auto = Automatically configures memory
sub-timings.
Manual = Manually configure memory sub
timings with settings applied to both
channels simultaneously.
Advanced Manual = Manually configure
both memory channels individually.
```

```
→←: Select Screen  ↑↓/Click: Select Item
Enter/Dbl Click: Select
+/-/PU/PD: Change Opt.
F2  : Smart Tweak Mode
F5  : Previous Values
F7  : Optimized Defaults
F8  : Q-Flash
F9  : System Information
F10 : Save & Exit
F12 : Print Screen(FAT16/32 Format Only)
ESC/Right Click: Exit
```

This sub-menu provides memory timing settings for each channel of memory. This sub-menu provides memory timing settings for each channel of memory. The respective timing setting screens are configurable only when **Memory Timing Mode** is set to **Manual** or **Advanced Manual**. Note: Your system may become unstable or fail to boot after you make changes on the memory timings. If this occurs, please reset the board to default values by loading optimized defaults or clearing the CMOS values.

Advanced Voltage Settings


GIGABYTE - UEFI DualBIOS
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M.I.T.\Advanced Voltage Settings
ST Mode
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Q-Flash
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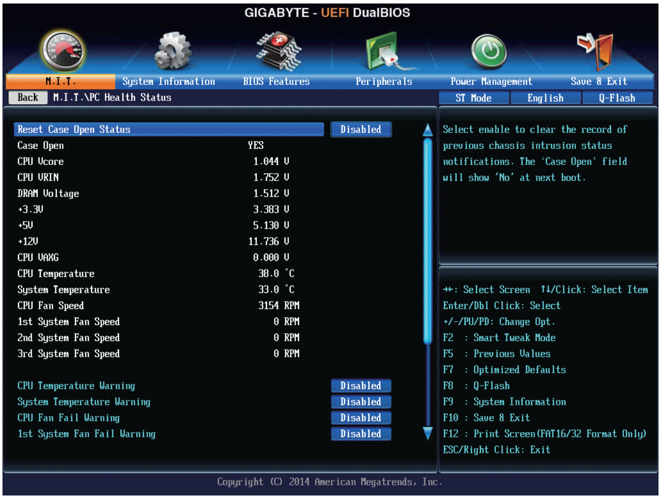
```
▶ CPU Core Voltage Control
▶ Chipset Voltage Control
▶ DRAM Voltage Control
```

```
Adjust CPU voltage settings, including
VRIN, Vcore, Graphics, RING and System
Agent settings.
```

```
→←: Select Screen  ↑↓/Click: Select Item
Enter/Dbl Click: Select
+/-/PU/PD: Change Opt.
F2  : Smart Tweak Mode
F5  : Previous Values
F7  : Optimized Defaults
F8  : Q-Flash
F9  : System Information
F10 : Save & Exit
F12 : Print Screen(FAT16/32 Format Only)
ESC/Right Click: Exit
```

This sub-menu allows you to set CPU, chipset and memory voltages.

PC Health Status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```
Reset Case Open Status                          Disabled
Case Open                          YES
CPU Vcore                          1.044 V
CPU VRIN                           1.752 V
DRAM Voltage                       1.512 V
+3.3V                              3.383 V
+5V                                5.130 V
+12V                              11.736 V
CPU VAXG                           0.000 V
CPU Temperature                     38.0 °C
System Temperature                  33.0 °C
CPU Fan Speed                       3154 RPM
1st System Fan Speed                   0 RPM
2nd System Fan Speed                   0 RPM
3rd System Fan Speed                   0 RPM

CPU Temperature Warning                         Disabled
System Temperature Warning                      Disabled
CPU Fan Fail Warning                            Disabled
1st System Fan Fail Warning                     Disabled
```

```
Select enable to clear the record of
previous chassis intrusion status
notifications. The 'Case Open' field
will show 'No' at next boot.
```

```
→←: Select Screen  ↑↓/Click: Select Item
Enter/Dbl Click: Select
+/-/PU/PD: Change Opt.
F2  : Smart Tweak Mode
F5  : Previous Values
F7  : Optimized Defaults
F8  : Q-Flash
F9  : System Information
F10 : Save & Exit
F12 : Print Screen(FAT16/32 Format Only)
ESC/Right Click: Exit
```

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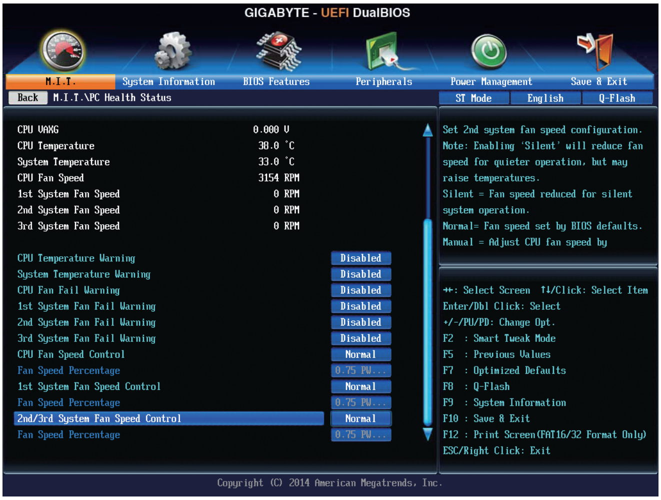
GIGABYTE - UEFI DualBIOS
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Peripherals
Power Management
Save & Exit
Back
M.I.T.\PC Health Status
ST Mode
English
Q-Flash

```
CPU VAXG                           0.000 V
CPU Temperature                     38.0 °C
System Temperature                  33.0 °C
CPU Fan Speed                       3154 RPM
1st System Fan Speed                   0 RPM
2nd System Fan Speed                   0 RPM
3rd System Fan Speed                   0 RPM

CPU Temperature Warning                         Disabled
System Temperature Warning                      Disabled
CPU Fan Fail Warning                            Disabled
1st System Fan Fail Warning                     Disabled
2nd System Fan Fail Warning                     Disabled
3rd System Fan Fail Warning                     Disabled
CPU Fan Speed Control                           Normal
Fan Speed Percentage                            0.75 PW...
1st System Fan Speed Control                    Normal
Fan Speed Percentage                            0.75 PW...
2nd/3rd System Fan Speed Control                Normal
Fan Speed Percentage                            0.75 PW...
```

```
Set 2nd system fan speed configuration.
Note: Enabling 'Silent' will reduce fan
speed for quieter operation, but may
raise temperatures.
Silent = Fan speed reduced for silent
system operation.
Normal= Fan speed set by BIOS defaults.
Manual = Adjust CPU fan speed by
```

```
→←: Select Screen  ↑↓/Click: Select Item
Enter/Dbl Click: Select
+/-/PU/PD: Change Opt.
F2  : Smart Tweak Mode
F5  : Previous Values
F7  : Optimized Defaults
F8  : Q-Flash
F9  : System Information
F10 : Save & Exit
F12 : Print Screen(FAT16/32 Format Only)
ESC/Right Click: Exit
```

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Reset Case Open Status

▸▸ Disabled	Keeps or clears the record of previous chassis intrusion status. (Default)
▸▸ Enabled	Clears the record of previous chassis intrusion status and the **Case Open** field will show "No" at next boot.

Case Open

Displays the detection status of the chassis intrusion detection device attached to the motherboard CI header. If the system chassis cover is removed, this field will show "Yes", otherwise it will show "No". To clear the chassis intrusion status record, set **Reset Case Open Status** to **Enabled**, save the settings to the CMOS, and then restart your system.

CPU Vcore/CPU VRIN/DRAM Voltage/+3.3V/+5V/+12V/CPU VAXG

Displays the current system voltages.

CPU/System Temperature

Displays current CPU/system temperature.

CPU/System Fan Speed

Displays current CPU/system fan speeds.

CPU/System Temperature Warning

Sets the warning threshold for CPU/system temperature. When temperature exceeds the threshold, BIOS will emit warning sound. Options are: Disabled (default), 60°C/140°F, 70°C/158°F, 80°C/176°F, 90°C/194°F.

CPU/System Fan Fail Warning

Allows the system to emit warning sound if the fan is not connected or fails. Check the fan condition or fan connection when this occurs. (Default: Disabled)

CPU Fan Speed Control

Allows you to determine whether to enable the fan speed control function and adjust the fan speed.

⏩ Normal	Allows the fan to run at different speeds according to the CPU temperature. You can adjust the fan speed with EasyTune based on your system requirements. (Default)
⏩ Silent	Allows the fan to run at slow speeds.
⏩ Manual	Allows you to control the fan speed under the **Fan Speed Percentage** item.
⏩ Full Speed	Allows the fan to run at full speeds.

Fan Speed Percentage

Allows you to control the fan speed. This item is configurable only when **CPU Fan Speed Control** is set to **Manual**. Options are: 0.75 PWM value /°C ~ 2.50 PWM value /°C.

1st System Fan Speed Control (SYS_FAN1 Connector)

Allows you to determine whether to enable the fan speed control function and adjust the fan speed.

⏩ Normal	Allows the fan to run at different speeds according to the system temperature. You can adjust the fan speed with EasyTune based on your system requirements. (Default)
⏩ Silent	Allows the fan to run at slow speeds.
⏩ Manual	Allows you to control the fan speed under the **Fan Speed Percentage** item.
⏩ Full Speed	Allows the fan to run at full speeds.

Fan Speed Percentage

Allows you to control the fan speed. This item is configurable only when **1st System Fan Speed Control** is set to **Manual**. Options are: 0.75 PWM value /°C ~ 2.50 PWM value /°C.

2nd/3rd System Fan Speed Control (SYS_FAN2/ SYS_FAN3 Connectors)

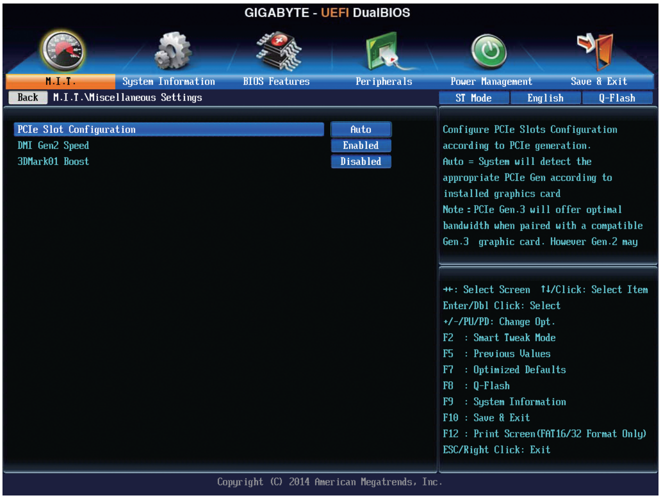
Allows you to determine whether to enable the fan speed control function and adjust the fan speed.

⏩ Normal	Allows the fan to run at different speeds according to the system temperature. You can adjust the fan speed with EasyTune based on your system requirements. (Default)
⏩ Silent	Allows the fan to run at slow speeds.
⏩ Manual	Allows you to control the fan speed under the **Fan Speed Percentage** item.
⏩ Full Speed	Allows the fan to run at full speeds.

Fan Speed Percentage

Allows you to control the fan speed. This item is configurable only when **2nd/3rd System Fan Speed Control** is set to **Manual**. Options are: 0.75 PWM value /°C ~ 2.50 PWM value /°C.

Miscellaneous Settings



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PCIe Slot Configuration Auto
DMI Gen2 Speed Enabled
3DMark01 Boost Disabled

Configure PCIe Slots Configuration according to PCIe generation. Auto = System will detect the appropriate PCIe Gen according to installed graphics card Note : PCIe Gen.3 will offer optimal bandwidth when paired with a compatible Gen.3 graphic card. However Gen.2 may

→←: Select Screen ↑↓/Click: Select Item
Enter/Dbl Click: Select
+/-/PU/PD: Change Opt.
F2 : Smart Tweak Mode
F5 : Previous Values
F7 : Optimized Defaults
F8 : Q-Flash
F9 : System Information
F10 : Save & Exit
F12 : Print Screen(FAT16/32 Format Only)
ESC/Right Click: Exit

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PCIe Slot Configuration

Allows you to set the operation mode of the PCI Express slots to Gen 1, Gen 2, or Gen 3. Actual operation mode is subject to the hardware specification of each slot. **Auto** lets the BIOS automatically configure this setting. (Default: Auto)

DMI Gen2 Speed

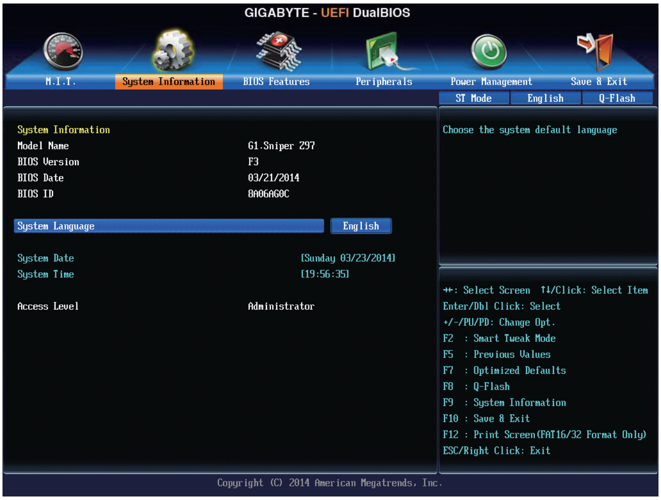
Allows you to configure the DMI link speed.

⏩ Auto	Lets the BIOS automatically configure this setting.
⏩ Enabled	Sets the DMI link speed to Gen 2. (Default)
⏩ Disabled	Sets the DMI link speed to Gen 1.

3DMark01 Boost

Allows you to determine whether to enhance some legacy benchmark performance. (Default: Disabled)

2-4 System Information



```
System Information
Model Name                              G1.Sniper Z97
BIOS Version                            F3
BIOS Date                               03/21/2014
BIOS ID                                 8A06AG0C

System Language                         English

System Date                                  [Sunday 03/23/2014]
System Time                                  [19:56:35]

Access Level                            Administrator
```

Choose the system default language

```
→←: Select Screen  ↑↓/Click: Select Item
Enter/Dbl Click: Select
+/-/PU/PD: Change Opt.
F2  : Smart Tweak Mode
F5  : Previous Values
F7  : Optimized Defaults
F8  : Q-Flash
F9  : System Information
F10 : Save & Exit
F12 : Print Screen(FAT16/32 Format Only)
ESC/Right Click: Exit
```

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This section provides information on your motherboard model and BIOS version. You can also select the default language used by the BIOS and manually set the system time.

☞ System Language

Selects the default language used by the BIOS.

☞ System Date

Sets the system date. The date format is week (read-only), month, date, and year. Use <Enter> to switch between the Month, Date, and Year fields and use the <Page Up> or <Page Down> key to set the desired value.

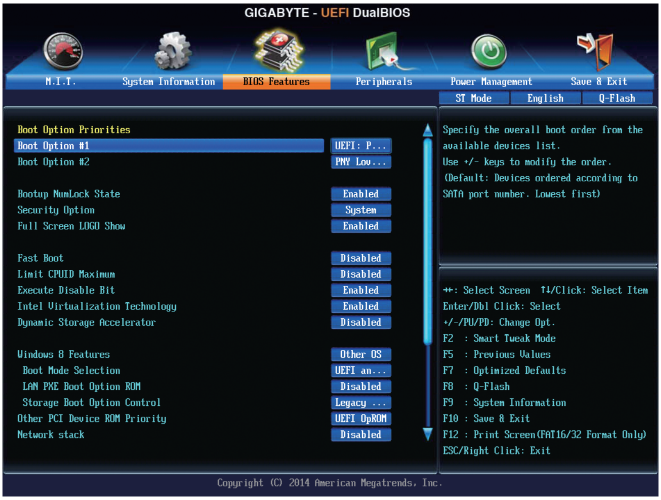
☞ System Time

Sets the system time. The time format is hour, minute, and second. For example, 1 p.m. is 13:0:0. Use <Enter> to switch between the Hour, Minute, and Second fields and use the <Page Up> or <Page Down> key to set the desired value.

☞ Access Level

Displays the current access level depending on the type of password protection used. (If no password is set, the default will display as Administrator.) The Administrator level allows you to make changes to all BIOS settings; the User level only allows you to make changes to certain BIOS settings but not all.

2-5 BIOS Features



Boot Option Priorities
Boot Option #1 UEFI: P...
Boot Option #2 PNY Lov...

Bootup NumLock State Enabled
Security Option System
Full Screen LOGO Show Enabled

Fast Boot Disabled
Limit CPUID Maximum Disabled
Execute Disable Bit Enabled
Intel Virtualization Technology Enabled
Dynamic Storage Accelerator Disabled

Windows 8 Features Other OS
Boot Mode Selection UEFI an...
LAN PXE Boot Option ROM Disabled
Storage Boot Option Control Legacy ...
Other PCI Device ROM Priority UEFI OpROM
Network stack Disabled

Specify the overall boot order from the available devices list.
Use +/- keys to modify the order.
(Default: Devices ordered according to SATA port number. Lowest first)

→←: Select Screen ↑↓/Click: Select Item
Enter/Dbl Click: Select
+/-/PU/PD: Change Opt.
F2 : Smart Tweak Mode
F5 : Previous Values
F7 : Optimized Defaults
F8 : Q-Flash
F9 : System Information
F10 : Save & Exit
F12 : Print Screen(FAT16/32 Format Only)
ESC/Right Click: Exit

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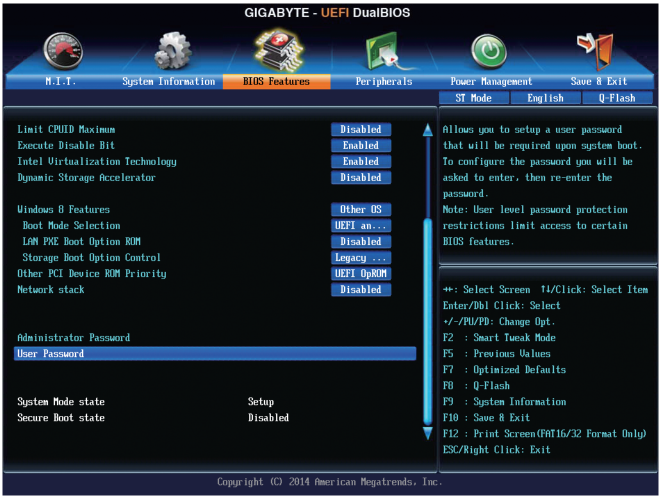

Limit CPUID Maximum Disabled
Execute Disable Bit Enabled
Intel Virtualization Technology Enabled
Dynamic Storage Accelerator Disabled

Windows 8 Features Other OS
Boot Mode Selection UEFI an...
LAN PXE Boot Option ROM Disabled
Storage Boot Option Control Legacy ...
Other PCI Device ROM Priority UEFI OpROM
Network stack Disabled

Administrator Password
User Password

System Mode state Setup
Secure Boot state Disabled

Allows you to setup a user password that will be required upon system boot.
To configure the password you will be asked to enter, then re-enter the password.
Note: User level password protection restrictions limit access to certain BIOS features.

→←: Select Screen ↑↓/Click: Select Item
Enter/Dbl Click: Select
+/-/PU/PD: Change Opt.
F2 : Smart Tweak Mode
F5 : Previous Values
F7 : Optimized Defaults
F8 : Q-Flash
F9 : System Information
F10 : Save & Exit
F12 : Print Screen(FAT16/32 Format Only)
ESC/Right Click: Exit

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☞ Boot Option Priorities

Specifies the overall boot order from the available devices.
Removable storage devices that support GPT format will be prefixed with "UEFI:" string on the boot device list. To boot from an operating system that supports GPT partitioning, select the device prefixed with "UEFI:" string.
Or if you want to install an operating system that supports GPT partitioning such as Windows 7 64-bit, select the optical drive that contains the Windows 7 64-bit installation disk and is prefixed with "UEFI:" string.

☞ Bootup NumLock State

Enables or disables Numlock feature on the numeric keypad of the keyboard after the POST. (Default: Enabled)

Security Option

Specifies whether a password is required every time the system boots, or only when you enter BIOS Setup. After configuring this item, set the password(s) under the **Administrator Password/User Password** item.

Setup	A password is only required for entering the BIOS Setup program.
System	A password is required for booting the system and for entering the BIOS Setup program. (Default)

Full Screen LOGO Show

Allows you to determine whether to display the GIGABYTE Logo at system startup. **Disabled** skips the GIGABYTE Logo when the system starts up. (Default: Enabled)

Fast Boot

Enables or disables Fast Boot to shorten the OS boot process. **Ultra Fast** provides the fastest bootup speed. (Default: Disabled)

VGA Support

Allows you to select which type of operating system to boot.

Auto	Enables legacy option ROM only.
EFI Driver	Enables EFI option ROM. (Default)

This item is configurable only when **Fast Boot** is set to Enabled or **Ultra Fast**.

USB Support

Disabled	All USB devices are disabled before the OS boot process completes.
Full Initial	All USB devices are functional in the operating system and during the POST.
Partial Initial	Part of the USB devices are disabled before the OS boot process completes. (Default)

This item is configurable only when **Fast Boot** is set to **Enabled**. This item is disabled when **Fast Boot** is set to **Ultra Fast**.

PS2 Devices Support

Disabled	All PS/2 devices are disabled before the OS boot process completes.
Enabled	All PS/2 devices are functional in the operating system and during the POST. (Default)

This item is configurable only when **Fast Boot** is set to **Enabled**. This item is disabled when **Fast Boot** is set to **Ultra Fast**.

NetWork Stack Driver Support

Disabled	Disables booting from the network. (Default)
Enabled	Enables booting from the network.

This item is configurable only when **Fast Boot** is set to Enabled or **Ultra Fast**.

Next Boot After AC Power Loss

Normal Boot	Enables normal bootup upon the return of the AC power. (Default)
Fast Boot	Keeps the Fast Boot settings upon the return of the AC power.

This item is configurable only when **Fast Boot** is set to Enabled or **Ultra Fast**.

Limit CPUID Maximum (Note)

Allows you to determine whether to limit CPUID maximum value. Set this item to **Disabled** for Windows XP operating system; set this item to **Enabled** for legacy operating system such as Windows NT4.0. (Default: Disabled)

Execute Disable Bit (Note)

Enables or disables Intel® Execute Disable Bit function. This function may enhance protection for the computer, reducing exposure to viruses and malicious buffer overflow attacks when working with its supporting software and system. (Default: Enabled)

(Note) This item is present only when you install a CPU that supports this feature. For more information about Intel® CPUs' unique features, please visit Intel's website.

☞ Intel Virtualization Technology (Note)

Enables or disables Intel® Virtualization Technology. Virtualization enhanced by Intel® Virtualization Technology will allow a platform to run multiple operating systems and applications in independent partitions. With virtualization, one computer system can function as multiple virtual systems. (Default: Enabled)

☞ Intel TXT(LT) Support (Note)

Enables or disables Intel® Trusted Execution Technology (Intel® TXT). Intel® Trusted Execution Technology provides a hardware-based security foundation. (Default: Disabled)

☞ Dynamic Storage Accelerator

Enables or disables Intel® Dynamic Storage Accelerator. When enabled, the hard drive I/O performance will be adjusted according to hard drive load. (Default: Disabled)

☞ VT-d (Note)

Enables or disables Intel® Virtualization Technology for Directed I/O. (Default: Enabled)

☞ Windows 8 Features

Allows you to select the operating system to be installed. (Default: Other OS)

☞ CSM Support

Enables or disables UEFI CSM (Compatibility Support Module) to support a legacy PC boot process.

Always	Enables UEFI CSM. (Default)
Never	Disables UEFI CSM and supports UEFI BIOS boot process only.

This item is configurable only when **Windows 8 Features** is set to **Windows 8**.

☞ Boot Mode Selection

Allows you to select which type of operating system to boot.

UEFI and Legacy	Allows booting from operating systems that support legacy option ROM or UEFI option ROM. (Default)
Legacy Only	Allows booting from operating systems that only support legacy Option ROM.
UEFI Only	Allows booting from operating systems that only support UEFI Option ROM.

This item is configurable only when **CSM Support** is set to **Always**.

☞ LAN PXE Boot Option ROM

Allows you to select whether to enable the legacy option ROM for the LAN controller. (Default: Disabled)

This item is configurable only when **CSM Support** is set to **Always**.

☞ Storage Boot Option Control

Allows you to select whether to enable the UEFI or legacy option ROM for the storage device controller.

Disabled	Disables option ROM.
Legacy Only	Enables legacy option ROM only. (Default)
UEFI Only	Enables UEFI option ROM only.
Legacy First	Enables legacy option ROM first.
UEFI First	Enables UEFI option ROM first.

This item is configurable only when **CSM Support** is set to Always.

☞ Other PCI Device ROM Priority

Allows you to select whether to enable the UEFI or Legacy option ROM for the PCI device controller other than the LAN, storage device, and graphics controllers.

Legacy OpROM	Enables legacy option ROM only.
UEFI OpROM	Enables UEFI option ROM only. (Default)

This item is configurable only when **CSM Support** is set to **Always**.

(Note) This item is present only when you install a CPU that supports this feature. For more information about Intel® CPUs' unique features, please visit Intel's website.

☞ **Network stack**

Disables or enables booting from the network to install a GPT format OS, such as installing the OS from the Windows Deployment Services server. (Default: Disabled)

☞ **Ipv4 PXE Support**

Enables or disables IPv4 PXE Support. This item is configurable only when **Network stack** is enabled.

☞ **Ipv6 PXE Support**

Enables or disables IPv6 PXE Support. This item is configurable only when **Network stack** is enabled.

☞ **Administrator Password**

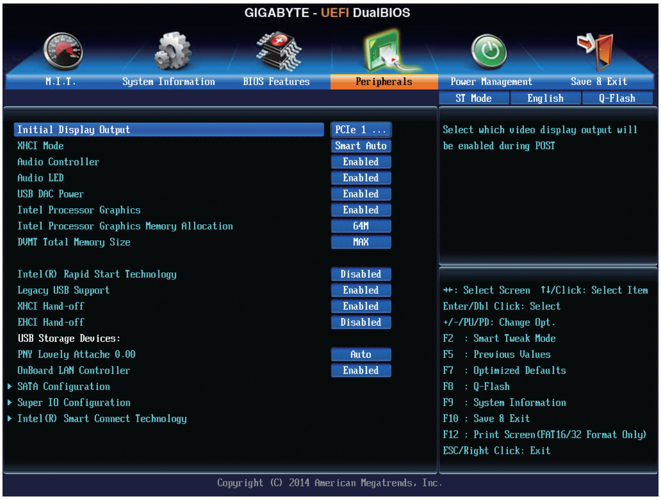
Allows you to configure an administrator password. Press <Enter> on this item, type the password, and then press <Enter>. You will be requested to confirm the password. Type the password again and press <Enter>. You must enter the administrator password (or user password) at system startup and when entering BIOS Setup. Differing from the user password, the administrator password allows you to make changes to all BIOS settings.

☞ **User Password**

Allows you to configure a user password. Press <Enter> on this item, type the password, and then press <Enter>. You will be requested to confirm the password. Type the password again and press <Enter>. You must enter the administrator password (or user password) at system startup and when entering BIOS Setup. However, the user password only allows you to make changes to certain BIOS settings but not all.

To cancel the password, press <Enter> on the password item and when requested for the password, enter the correct one first. When prompted for a new password, press <Enter> without entering any password. Press <Enter> again when prompted to confirm.

2-6 Peripherals



```
Initial Display Output                          PCIe 1 ...
XHCI Mode                                       Smart Auto
Audio Controller                                Enabled
Audio LED                                       Enabled
USB DAC Power                                   Enabled
Intel Processor Graphics                        Enabled
Intel Processor Graphics Memory Allocation      64M
DVMT Total Memory Size                          MAX

Intel(R) Rapid Start Technology                 Disabled
Legacy USB Support                              Enabled
XHCI Hand-off                                   Enabled
EHCI Hand-off                                   Disabled
USB Storage Devices:
PNY Lovely Attache 0.00                         Auto
OnBoard LAN Controller                          Enabled
▸ SATA Configuration
▸ Super IO Configuration
▸ Intel(R) Smart Connect Technology
```

```
Select which video display output will
be enabled during POST
```

```
→←: Select Screen  ↑↓/Click: Select Item
Enter/Dbl Click: Select
+/-/PU/PD: Change Opt.
F2  : Smart Tweak Mode
F5  : Previous Values
F7  : Optimized Defaults
F8  : Q-Flash
F9  : System Information
F10 : Save & Exit
F12 : Print Screen(FAT16/32 Format Only)
ESC/Right Click: Exit
```

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☞ Initial Display Output

Specifies the first initiation of the monitor display from the installed PCI graphics card, PCI Express graphics card or the onboard graphics.

⏩ IGFX	Sets the onboard graphics as the first display.
⏩ PCIe 1 Slot	Sets the graphics card on the PCIEX16 slot as the first display. (Default)
⏩ PCIe 2 Slot	Sets the graphics card on the PCIEX8 slot as the first display.
⏩ PCI	Sets the graphics card on the PCI slot as the first display.

☞ XHCI Mode

Allows you to determine the operating mode for the xHCI controller in OS.

⏩ Smart Auto	This mode is available only when the BIOS supports the xHCI controller in the pre-boot environment. This mode is similar to **Auto**, but it adds the capability to route the ports to xHCI or EHCI according to setting used in previous boots (for non-G3 boot) in the pre-boot environment. This allows the use of USB 3.0 devices prior to OS boot. xHCI controller enabling and rerouting should follow the steps in **Auto**, when previous boot routs ports to EHCI. Note: This is the recommended mode when BIOS has xHCI pre-boot support. (Default)
⏩ Auto	BIOS routes the sharable ports to EHCI controller. Then it uses ACPI protocols to provide an option to enable the xHCI controller and reroute the sharable ports. Note: This is the recommended mode when BIOS does NOT have xHCI pre-boot support.
⏩ Enabled	All shared ports are eventually routed to the xHCI controller during the BIOS boot process. If BIOS does not have pre-boot support for the xHCI controller, it should initially route the sharable ports to the EHCI controller and then prior to OS boot it should route the ports to xHCI controller. Note: OS has to provide support for the xHCI controller in this mode. If the OS does not provide support, all sharable ports won't work.
⏩ Disabled	The USB 3.0 ports are routed to the EHCI controller and the xHCI controller is turned off. All USB 3.0 devices function as High Speed devices regardless of xHCI software support/availability.

☞ **Audio Controller**

Enables or disables the onboard audio function. (Default: Enabled)

If you wish to install a 3rd party add-in audio card instead of using the onboard audio, set this item to **Disabled**.

☞ **Audio LED**

Enables or disables the onboard audio LED. (Default: Enabled)

☞ **USB DAC Power**

Enables or disables the power for the USB DAC connector on the back panel. For a USB DAC that has independent power, set this item to **Disabled**. (Default: Enabled)

☞ **Intel Processor Graphics**

Enables or disables the onboard graphics function. (Default: Enabled)

☞ **Intel Processor Graphics Memory Allocation**

Allows you to set the onboard graphics memory size. Options are: 32M~1024M. (Default: 64M)

☞ **DVMT Total Memory Size**

Allows you to allocate the DVMT memory size of the onboard graphics. Options are: 128M, 256M, MAX. (Default: MAX)

☞ **Intel(R) Rapid Start Technology**

Enables or disables Intel® Rapid Start Technology. (Default: Disabled)

☞ **Legacy USB Support**

Allows USB keyboard/mouse to be used in MS-DOS. (Default: Enabled)

☞ **XHCI Hand-off**

Determines whether to enable XHCI Hand-off feature for an operating system without XHCI Hand-off support. (Default: Enabled)

☞ **EHCI Hand-off**

Determines whether to enable EHCI Hand-off feature for an operating system without EHCI Hand-off support. (Default: Disabled)

☞ **USB Storage Devices**

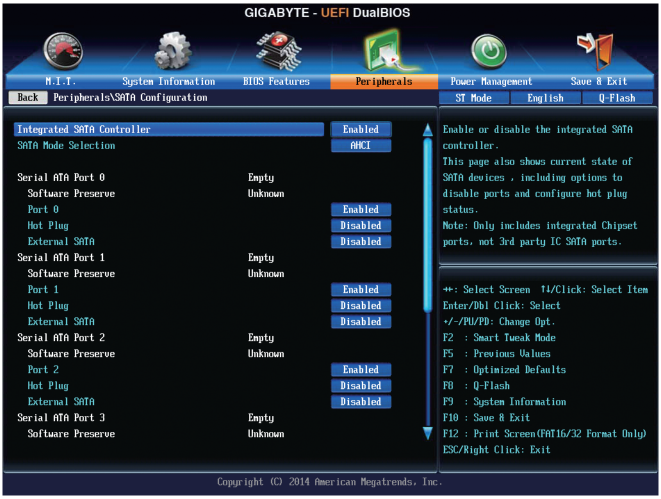
Displays a list of connected USB mass storage devices. This item appears only when a USB storage device is installed.

☞ **OnBoard LAN Controller**

Enables or disables the onboard LAN function. (Default: Enabled)

If you wish to install a 3rd party add-in network card instead of using the onboard LAN, set this item to **Disabled**.

SATA Configuration



```
Integrated SATA Controller                         Enabled
SATA Mode Selection                                AHCI

Serial ATA Port 0                     Empty
  Software Preserve                   Unknown
  Port 0                                           Enabled
  Hot Plug                                         Disabled
  External SATA                                    Disabled
Serial ATA Port 1                     Empty
  Software Preserve                   Unknown
  Port 1                                           Enabled
  Hot Plug                                         Disabled
  External SATA                                    Disabled
Serial ATA Port 2                     Empty
  Software Preserve                   Unknown
  Port 2                                           Enabled
  Hot Plug                                         Disabled
  External SATA                                    Disabled
Serial ATA Port 3                     Empty
  Software Preserve                   Unknown
```

Enable or disable the integrated SATA controller.
This page also shows current state of SATA devices , including options to disable ports and configure hot plug status.
Note: Only includes integrated Chipset ports, not 3rd party IC SATA ports.

```
→←: Select Screen  ↑↓/Click: Select Item
Enter/Dbl Click: Select
+/-/PU/PD: Change Opt.
F2  : Smart Tweak Mode
F5  : Previous Values
F7  : Optimized Defaults
F8  : Q-Flash
F9  : System Information
F10 : Save & Exit
F12 : Print Screen(FAT16/32 Format Only)
ESC/Right Click: Exit
```

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Integrated SATA Controller

Enables or disables the integrated SATA controllers. (Default: Enabled)

SATA Mode Selection

Enables or disables RAID for the SATA controllers integrated in the Chipset or configures the SATA controllers to AHCI mode.

⏩ IDE	Configures the SATA controller to IDE mode.
⏩ RAID	Enables RAID for the SATA controller.
⏩ AHCI	Configures the SATA controllers to AHCI mode. Advanced Host Controller Interface (AHCI) is an interface specification that allows the storage driver to enable advanced Serial ATA features such as Native Command Queuing and hot plug. (Default)

Serial ATA Port 0/1/2/3/4/5

Port 0/1/2/3/4/5

Enables or disables each SATA port. (Default: Enabled)

Hot plug

Enables or disable the hot plug capability for each SATA port. (Default: Disabled)

External SATA

Enables or disables support for external SATA devices. (Default: Disabled)

Super IO Configuration

This section provides information on the super I/O chip and allows you to configure the serial port.

Serial Port A

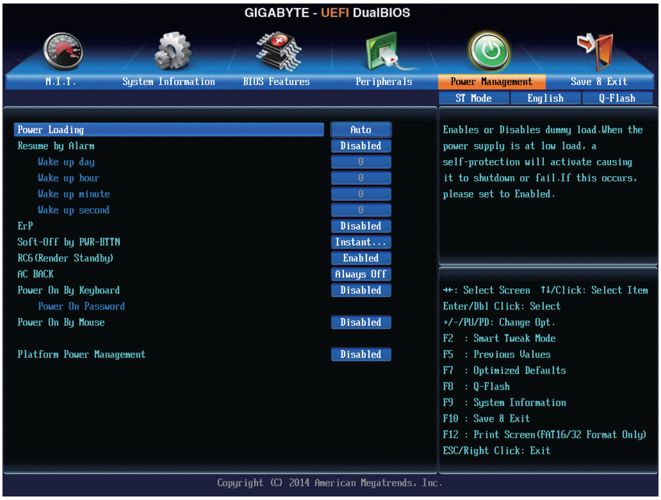
Enables or disables the onboard serial port. (Default: Enabled)

Intel(R) Smart Connect Technology

ISCT Support

Enables or disables Intel® Smart Connect Technology. (Default: Disabled)

2-7 Power Management



Power Loading	Auto
Resume by Alarm	Disabled
Wake up day	0
Wake up hour	0
Wake up minute	0
Wake up second	0
ErP	Disabled
Soft-Off by PWR-BTTN	Instant...
RC6(Render Standby)	Enabled
AC BACK	Always Off
Power On By Keyboard	Disabled
Power On Password	
Power On By Mouse	Disabled
Platform Power Management	Disabled

Enables or Disables dummy load.When the power supply is at low load, a self-protection will activate causing it to shutdown or fail.If this occurs, please set to Enabled.

→←: Select Screen ↑↓/Click: Select Item
Enter/Dbl Click: Select
+/-/PU/PD: Change Opt.
F2 : Smart Tweak Mode
F5 : Previous Values
F7 : Optimized Defaults
F8 : Q-Flash
F9 : System Information
F10 : Save & Exit
F12 : Print Screen(FAT16/32 Format Only)
ESC/Right Click: Exit

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☞ **Power Loading**

Enables or disables dummy load. When the power supply is at low load, a self-protection will activate causing it to shutdown or fail. If this occurs, please set to **Enabled**. **Auto** lets the BIOS automatically configure this setting. (Default: Auto)

☞ **Resume by Alarm**

Determines whether to power on the system at a desired time. (Default: Disabled)

If enabled, set the date and time as following:

- Wake up day: Turn on the system at a specific time on each day or on a specific day in a month.
- Wake up hour/minute/second: Set the time at which the system will be powered on automatically.

Note: When using this function, avoid inadequate shutdown from the operating system or removal of the AC power, or the settings may not be effective.

☞ **ErP**

Determines whether to let the system consume least power in S5 (shutdown) state. (Default: Disabled)

Note: When this item is set to **Enabled**, the following functions will become unavailable: PME event wake up, power on by mouse, power on by keyboard, and wake on LAN.

☞ **Soft-Off by PWR-BTTN**

Configures the way to turn off the computer in MS-DOS mode using the power button.

Instant-Off	Press the power button and then the system will be turned off instantly. (Default)
Delay 4 Sec.	Press and hold the power button for 4 seconds to turn off the system. If the power button is pressed for less than 4 seconds, the system will enter suspend mode.

☞ **RC6(Render Standby)**

Allows you to determine whether to let the onboard graphics enter standby mode to decrease power consumption. (Default: Enabled)

AC BACK

Determines the state of the system after the return of power from an AC power loss.

▸▸ Always Off	The system stays off upon the return of the AC power. (Default)
▸▸ Always On	The system is turned on upon the return of the AC power.
▸▸ Memory	The system returns to its last known awake state upon the return of the AC power.

Power On By Keyboard

Allows the system to be turned on by a PS/2 keyboard wake-up event.

Note: To use this function, you need an ATX power supply providing at least 1A on the +5VSB lead.

▸▸ Disabled	Disables this function. (Default)
▸▸ Any Key	Press any key to turn on the system.
▸▸ Keyboard 98	Press POWER button on the Windows 98 keyboard to turn on the system.
▸▸ Password	Set a password with 1~5 characters to turn on the system.

Power On Password

Set the password when **Power On By Keyboard** is set to **Password**.

Press <Enter> on this item and set a password with up to 5 characters and then press <Enter> to accept.

To turn on the system, enter the password and press <Enter>.

Note: To cancel the password, press <Enter> on this item. When prompted for the password, press <Enter> again without entering the password to clear the password settings.

Power On By Mouse

Allows the system to be turned on by a PS/2 mouse wake-up event.

Note: To use this function, you need an ATX power supply providing at least 1A on the +5VSB lead.

▸▸ Disabled	Disables this function. (Default)
▸▸ Move	Move the mouse to turn on the system.
▸▸ Double Click	Double click on left button on the mouse to turn on the system.

Platform Power Management

Enables or disables the Active State Power Management function (ASPM). (Default: Disabled)

PEG ASPM

Allows you to configure the ASPM mode for the device connected to the CPU PEG bus. **Auto** lets the BIOS automatically configure this setting. This item is configurable only when **Platform Power Management** is set to **Enabled**. (Default: Auto)

PCIe ASPM

Allows you to configure the ASPM mode for the device connected to Chipset's PCI Express bus. **Auto** lets the BIOS automatically configure this setting. This item is configurable only when **Platform Power Management** is set to **Enabled**. (Default: Auto)

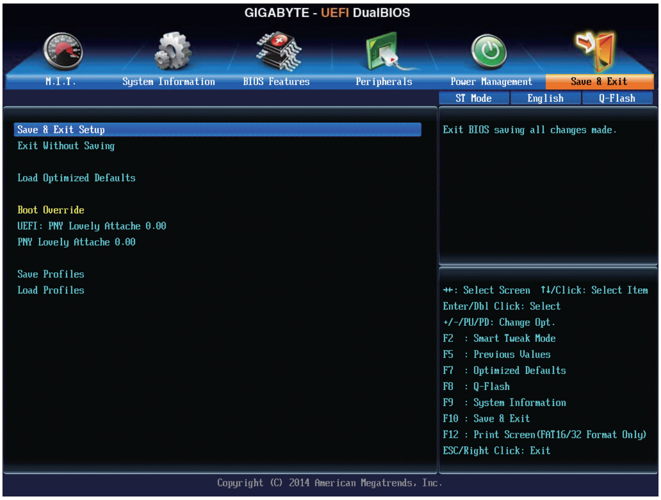
CPU DMI Link ASPM Control

Allows you to configure the ASPM mode for the CPU side of the DMI link. **Auto** lets the BIOS automatically configure this setting. This item is configurable only when **Platform Power Management** is set to **Enabled**. (Default:L0sL1)

PCH DMI Link ASPM Control

Allows you to configure the ASPM mode for both CPU side and Chipset side of the DMI link. **Auto** lets the BIOS automatically configure this setting. This item is configurable only when **Platform Power Management** is set to **Enabled**. (Default: Enabled)

2-8 Save & Exit


GIGABYTE - UEFI DualBIOS
M.I.T.
System Information
BIOS Features
Peripherals
Power Management
Save & Exit
ST Mode
English
Q-Flash
Save & Exit Setup
Exit Without Saving
Load Optimized Defaults
Boot Override
UEFI: PNY Lovely Attache 0.00
PNY Lovely Attache 0.00
Save Profiles
Load Profiles

```
Exit BIOS saving all changes made.

→←: Select Screen  ↑↓/Click: Select Item
Enter/Dbl Click: Select
+/-/PU/PD: Change Opt.
F2   : Smart Tweak Mode
F5   : Previous Values
F7   : Optimized Defaults
F8   : Q-Flash
F9   : System Information
F10  : Save & Exit
F12  : Print Screen(FAT16/32 Format Only)
ESC/Right Click: Exit

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```

☞ Save & Exit Setup

Press <Enter> on this item and select **Yes**. This saves the changes to the CMOS and exits the BIOS Setup program. Select **No** or press <Esc> to return to the BIOS Setup Main Menu.

☞ Exit Without Saving

Press <Enter> on this item and select **Yes**. This exits the BIOS Setup without saving the changes made in BIOS Setup to the CMOS. Select **No** or press <Esc> to return to the BIOS Setup Main Menu.

☞ Load Optimized Defaults

Press <Enter> on this item and select **Yes** to load the optimal BIOS default settings. The BIOS defaults settings help the system to operate in optimum state. Always load the Optimized defaults after updating the BIOS or after clearing the CMOS values.

☞ Boot Override

Allows you to select a device to boot immediately. Press <Enter> on the device you select and select **Yes** to confirm. Your system will restart automatically and boot from that device.

☞ Save Profiles

This function allows you to save the current BIOS settings to a profile. You can create up to 8 profiles and save as Setup Profile 1~ Setup Profile 8. Press <Enter> to complete. Or you can select **Select File in HDD/USB/FDD** to save the profile to your storage device.

☞ Load Profiles

If your system becomes unstable and you have loaded the BIOS default settings, you can use this function to load the BIOS settings from a profile created before, without the hassles of reconfiguring the BIOS settings. First select the profile you wish to load and then press <Enter> to complete. You can select **Select File in HDD/USB/FDD** to input the profile previously created from your storage device or load the profile automatically created by the BIOS, such as reverting the BIOS settings to the last settings that worked properly (last known good record).

Chapter 3 Configuring SATA Hard Drive(s)

RAID Levels

	RAID 0	RAID 1	RAID 5	RAID 10
Minimum Number of Hard Drives	≥2	2	≥3	≥4
Array Capacity	Number of hard drives * Size of the smallest drive	Size of the smallest drive	(Number of hard drives -1) * Size of the smallest drive	(Number of hard drives/2) * Size of the smallest drive
Fault Tolerance	No	Yes	Yes	Yes

To configure SATA hard drive(s), follow the steps below:

A. Install SATA hard drive(s) in your computer.
B. Configure SATA controller mode in BIOS Setup.
C. Configure a RAID array in RAID BIOS. (Note 1)
D. Install the SATA RAID/AHCI driver and operating system. (Note 2)

Before you begin

Please prepare:

- At least two SATA hard drives (to ensure optimal performance, it is recommended that you use two hard drives with identical model and capacity). If you do not want to create RAID, you may prepare only one hard drive.
- Windows setup disk.
- Motherboard driver disk.
- A USB thumb drive.

3-1 Configuring SATA Controllers

A. Installing SATA hard drive(s) in your computer

Attach one end of the SATA signal cable to the rear of the SATA hard drive and the other end to available SATA port on the motherboard. Then connect the power connector from your power supply to the hard drive.

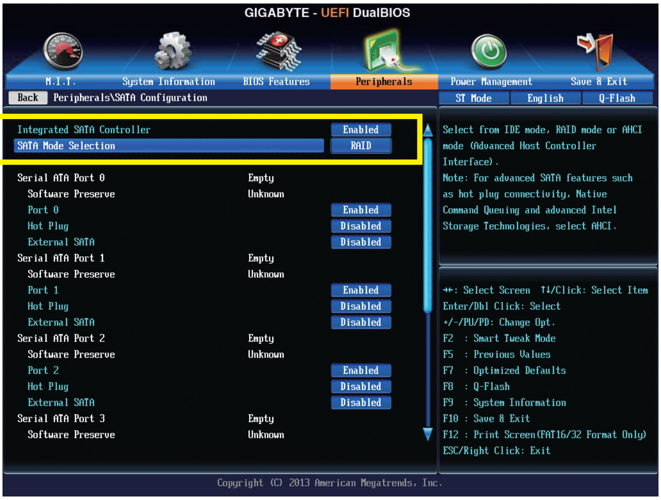
(Note 1) Skip this step if you do not want to create RAID array on the SATA controller.
(Note 2) Required when the SATA controller is set to AHCI or RAID mode.

B. Configuring SATA controller mode in BIOS Setup

Make sure to configure the SATA controller mode correctly in system BIOS Setup.

Step 1:

Turn on your computer and press <Delete> to enter BIOS Setup during the POST (Power-On Self-Test). Go to **Peripherals\SATA Configuration**, make sure **Integrated SATA Controller** is enabled. To create RAID, set **SATA Mode Selection** to **RAID** (Figure 1). If you do not want to create RAID, set this item to **IDE** or **AHCI**.



```
Integrated SATA Controller                    Enabled
SATA Mode Selection                           RAID

Serial ATA Port 0                  Empty
  Software Preserve                Unknown
  Port 0                                      Enabled
  Hot Plug                                    Disabled
  External SATA                               Disabled
Serial ATA Port 1                  Empty
  Software Preserve                Unknown
  Port 1                                      Enabled
  Hot Plug                                    Disabled
  External SATA                               Disabled
Serial ATA Port 2                  Empty
  Software Preserve                Unknown
  Port 2                                      Enabled
  Hot Plug                                    Disabled
  External SATA                               Disabled
Serial ATA Port 3                  Empty
  Software Preserve                Unknown
```

```
Select from IDE mode, RAID mode or AHCI
mode (Advanced Host Controller
Interface).
Note: For advanced SATA features such
as hot plug connectivity, Native
Command Queuing and advanced Intel
Storage Technologies, select AHCI.

→←: Select Screen  ↑↓/Click: Select Item
Enter/Dbl Click: Select
+/-/PU/PD: Change Opt.
F2  : Smart Tweak Mode
F5  : Previous Values
F7  : Optimized Defaults
F8  : Q-Flash
F9  : System Information
F10 : Save & Exit
F12 : Print Screen(FAT16/32 Format Only)
ESC/Right Click: Exit
```

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Figure 1

Step 2:

If you want to configure UEFI RAID, follow the steps in "C-1." To enter the legacy RAID ROM, save the settings and exit BIOS Setup. Refer to "C-2" for more information.

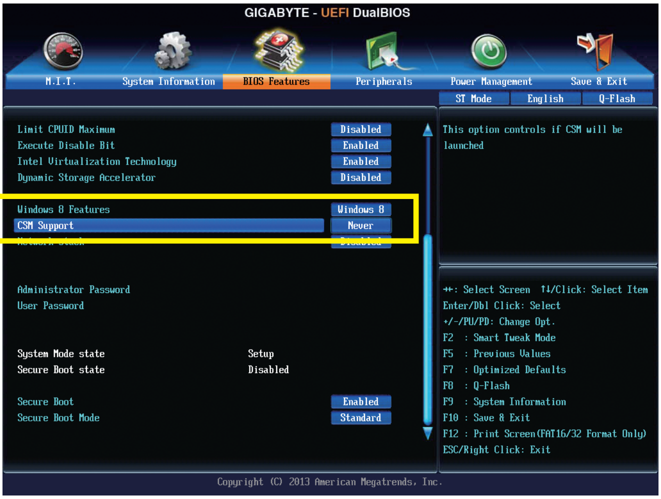
The BIOS Setup menus described in this section may differ from the exact settings for your motherboard. The actual BIOS Setup menu options you will see shall depend on the motherboard you have and the BIOS version.

C-1. UEFI RAID Configuration

This mode supports Windows 8.1/8 64-bit installation only.

Step 1:

In BIOS Setup, go to **BIOS Features** and set **Windows 8 Features** to **Windows 8** and **CSM Support** to **Never**. (Figure 2) Save the changes and exit BIOS Setup.


GIGABYTE - UEFI DualBIOS
M.I.T.
System Information
BIOS Features
Peripherals
Power Management
Save & Exit
ST Mode
English
Q-Flash

```
Limit CPUID Maximum                          Disabled
Execute Disable Bit                          Enabled
Intel Virtualization Technology              Enabled
Dynamic Storage Accelerator                  Disabled

Windows 8 Features                           Windows 8
CSM Support                                  Never


Administrator Password
User Password


System Mode state              Setup
Secure Boot state              Disabled

Secure Boot                                  Enabled
Secure Boot Mode                             Standard
```

```
This option controls if CSM will be
launched
```

```
→←: Select Screen  ↑↓/Click: Select Item
Enter/Dbl Click: Select
+/-/PU/PD: Change Opt.
F2  : Smart Tweak Mode
F5  : Previous Values
F7  : Optimized Defaults
F8  : Q-Flash
F9  : System Information
F10 : Save & Exit
F12 : Print Screen(FAT16/32 Format Only)
ESC/Right Click: Exit
```

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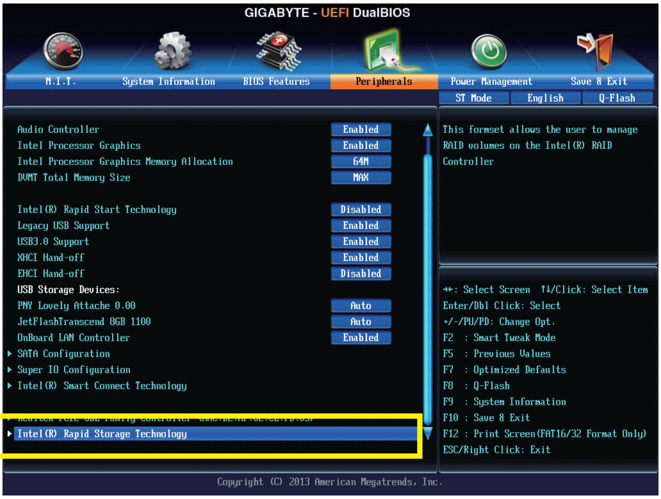
Figure 2

Step 2:

After the system reboot, enter BIOS Setup again. Then enter the **Peripherals\Intel(R) Rapid Storage Technology** sub-menu (Figure 3).


GIGABYTE - UEFI DualBIOS
M.I.T.
System Information
BIOS Features
Peripherals
Power Management
Save & Exit
ST Mode
English
Q-Flash

```
Audio Controller                             Enabled
Intel Processor Graphics                     Enabled
Intel Processor Graphics Memory Allocation   64M
DVMT Total Memory Size                       MAX

Intel(R) Rapid Start Technology              Disabled
Legacy USB Support                           Enabled
USB3.0 Support                               Enabled
XHCI Hand-off                                Enabled
EHCI Hand-off                                Disabled
USB Storage Devices:
PNY Lovely Attache 0.00                      Auto
JetFlashTranscend 8GB 1100                   Auto
OnBoard LAN Controller                       Enabled
▶ SATA Configuration
▶ Super IO Configuration
▶ Intel(R) Smart Connect Technology


▶ Intel(R) Rapid Storage Technology
```

```
This formset allows the user to manage
RAID volumes on the Intel(R) RAID
Controller
```

```
→←: Select Screen  ↑↓/Click: Select Item
Enter/Dbl Click: Select
+/-/PU/PD: Change Opt.
F2  : Smart Tweak Mode
F5  : Previous Values
F7  : Optimized Defaults
F8  : Q-Flash
F9  : System Information
F10 : Save & Exit
F12 : Print Screen(FAT16/32 Format Only)
ESC/Right Click: Exit
```

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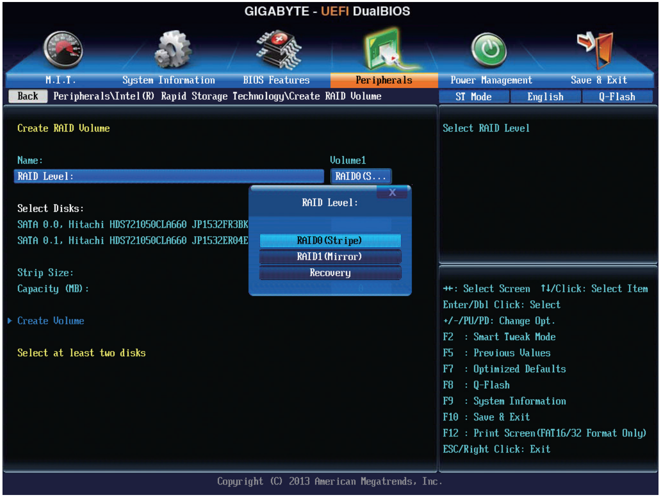
Figure 3

Step 3:

On the **Intel(R) Rapid Storage Technology** menu, press <Enter> on **Create RAID Volume** to enter the **Create RAID Volume** screen. Enter a volume name with 1~16 letters (letters cannot be special characters) under the **Name** item and press <Enter>. Then, select a RAID level (Figure 4). RAID levels supported include RAID 0, RAID 1, RAID 10, and RAID 5 (the selections available depend on the number of the hard drives being installed). Next, use the down arrow key to move to **Select Disks**.


GIGABYTE - UEFI DualBIOS
M.I.T.
System Information
BIOS Features
Peripherals
Power Management
Save & Exit
Back
ST Mode
English
Q-Flash
X
Copyright (C) 2013 American Megatrends, Inc.

Peripherals\Intel(R) Rapid Storage Technology\Create RAID Volume

Create RAID Volume

Name: Volume1

RAID Level: RAID0(S...

Select Disks:

SATA 0.0, Hitachi HDS721050CLA660 JP1532FR3BK

SATA 0.1, Hitachi HDS721050CLA660 JP1532ER04E

Strip Size:

Capacity (MB):

Create Volume

Select at least two disks

RAID Level:
- RAID0(Stripe)
- RAID1(Mirror)
- Recovery

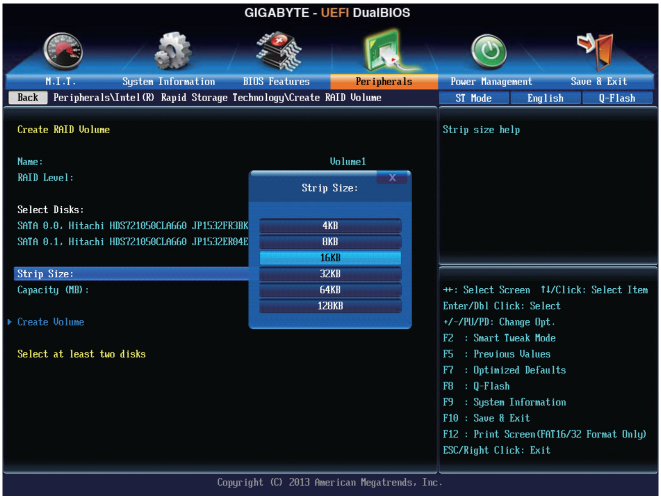
Select RAID Level

→←: Select Screen ↑↓/Click: Select Item
Enter/Dbl Click: Select
+/-/PU/PD: Change Opt.
F2 : Smart Tweak Mode
F5 : Previous Values
F7 : Optimized Defaults
F8 : Q-Flash
F9 : System Information
F10 : Save & Exit
F12 : Print Screen(FAT16/32 Format Only)
ESC/Right Click: Exit

Figure 4

Step 4:

Under **Select Disks** item, select the hard drives to be included in the RAID array. Press the <Space> key on the hard drives to be selected (selected hard drives are marked with "X"). Then set the stripe block size (Figure 5). The stripe block size can be set from 4 KB to 128 KB. Once you have selected the stripe block size, set the volume capacity.


GIGABYTE - UEFI DualBIOS
M.I.T.
System Information
BIOS Features
Peripherals
Power Management
Save & Exit
Back
ST Mode
English
Q-Flash
X
Copyright (C) 2013 American Megatrends, Inc.

Peripherals\Intel(R) Rapid Storage Technology\Create RAID Volume

Create RAID Volume

Name: Volume1

RAID Level:

Select Disks:

SATA 0.0, Hitachi HDS721050CLA660 JP1532FR3BK

SATA 0.1, Hitachi HDS721050CLA660 JP1532ER04E

Strip Size:

Capacity (MB):

Create Volume

Select at least two disks

Strip Size:
- 4KB
- 8KB
- 16KB
- 32KB
- 64KB
- 128KB

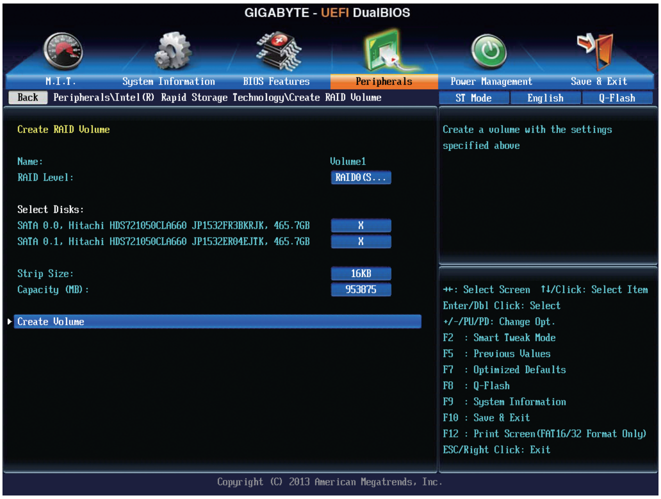
Strip size help

→←: Select Screen ↑↓/Click: Select Item
Enter/Dbl Click: Select
+/-/PU/PD: Change Opt.
F2 : Smart Tweak Mode
F5 : Previous Values
F7 : Optimized Defaults
F8 : Q-Flash
F9 : System Information
F10 : Save & Exit
F12 : Print Screen(FAT16/32 Format Only)
ESC/Right Click: Exit

Figure 5

Step 5:

After setting the capacity, move to **Create Volume** and press <Enter> to begin. (Figure 6)


GIGABYTE - UEFI DualBIOS
M.I.T.
System Information
BIOS Features
Peripherals
Power Management
Save & Exit
Back
ST Mode
English
Q-Flash
→←: Select Screen ↑↓/Click: Select Item
Enter/Dbl Click: Select
+/-/PU/PD: Change Opt.
F2 : Smart Tweak Mode
F5 : Previous Values
F7 : Optimized Defaults
F8 : Q-Flash
F9 : System Information
F10 : Save & Exit
F12 : Print Screen(FAT16/32 Format Only)
ESC/Right Click: Exit
Copyright (C) 2013 American Megatrends, Inc.

Peripherals\Intel(R) Rapid Storage Technology\Create RAID Volume

Create RAID Volume

Name: Volume1

RAID Level: RAID0(S...

Select Disks:

SATA 0.0, Hitachi HDS721050CLA660 JP1532FR3BKRJK, 465.7GB X

SATA 0.1, Hitachi HDS721050CLA660 JP1532ER04EJTK, 465.7GB X

Strip Size: 16KB

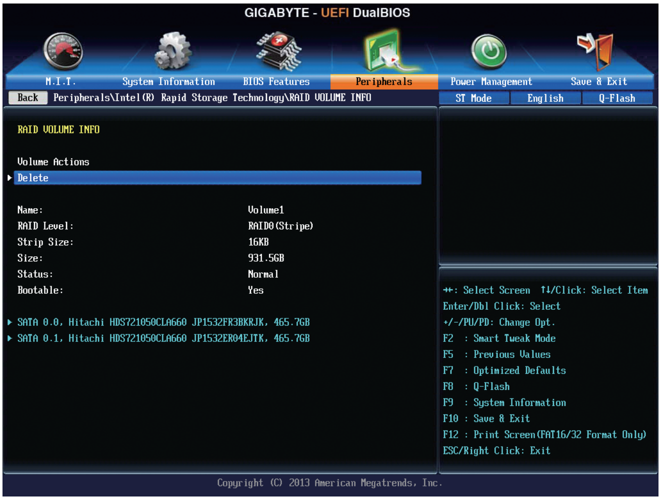
Capacity (MB): 953875

Create Volume

Create a volume with the settings specified above

Figure 6

After completing, you'll be brought back to the **Intel(R) Rapid Storage Technology** screen. Under **RAID Volumes** you can see the new RAID volume. To see more detailed information, press <Enter> on the volume to check for information on RAID level, stripe block size, array name, and array capacity, etc. (Figure 7)


GIGABYTE - UEFI DualBIOS
M.I.T.
System Information
BIOS Features
Peripherals
Power Management
Save & Exit
Back
ST Mode
English
Q-Flash
→←: Select Screen ↑↓/Click: Select Item
Enter/Dbl Click: Select
+/-/PU/PD: Change Opt.
F2 : Smart Tweak Mode
F5 : Previous Values
F7 : Optimized Defaults
F8 : Q-Flash
F9 : System Information
F10 : Save & Exit
F12 : Print Screen(FAT16/32 Format Only)
ESC/Right Click: Exit
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Peripherals\Intel(R) Rapid Storage Technology\RAID VOLUME INFO

RAID VOLUME INFO

Volume Actions

Delete

Name: Volume1

RAID Level: RAID0(Stripe)

Strip Size: 16KB

Size: 931.5GB

Status: Normal

Bootable: Yes

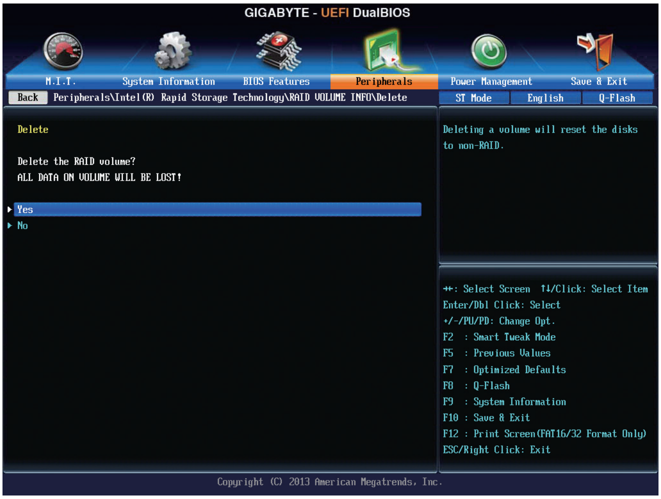
SATA 0.0, Hitachi HDS721050CLA660 JP1532FR3BKRJK, 465.7GB

SATA 0.1, Hitachi HDS721050CLA660 JP1532ER04EJTK, 465.7GB

Figure 7

Delete RAID Volume

To delete a RAID array, press <Enter> on the volume to be deleted on the **Intel(R) Rapid Storage Technology** screen. After entering the **RAID VOLUME INFO** screen, press <Enter> on **Delete** to enter the **Delete** screen. Press <Enter> on **Yes** (Figure 8).


GIGABYTE - UEFI DualBIOS
M.I.T.
System Information
BIOS Features
Peripherals
Power Management
Save & Exit
Back
Peripherals\Intel(R) Rapid Storage Technology\RAID VOLUME INFO\Delete
ST Mode
English
Q-Flash
→←: Select Screen ↑↓/Click: Select Item
Enter/Dbl Click: Select
+/-/PU/PD: Change Opt.
F2 : Smart Tweak Mode
F5 : Previous Values
F7 : Optimized Defaults
F8 : Q-Flash
F9 : System Information
F10 : Save & Exit
F12 : Print Screen(FAT16/32 Format Only)
ESC/Right Click: Exit
Copyright (C) 2013 American Megatrends, Inc.

Delete

Delete the RAID volume?
ALL DATA ON VOLUME WILL BE LOST!

▸ Yes
▸ No

Deleting a volume will reset the disks to non-RAID.

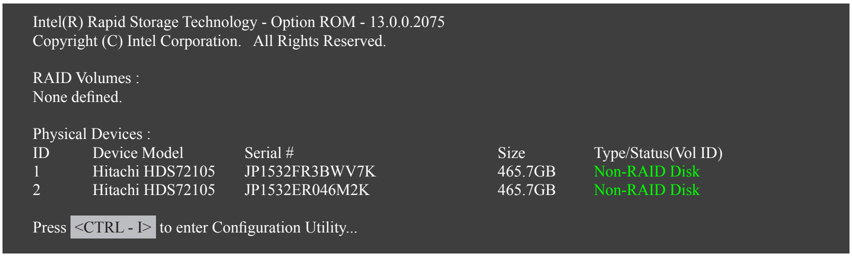
Figure 8

C-2. Configuring Legacy RAID ROM

Enter the Intel® legacy RAID BIOS setup utility to configure a RAID array. Skip this step and proceed with the installation of Windows operating system for a non-RAID configuration.

Step 1:

After the POST memory test begins and before the operating system boot begins, look for a message which says "Press <Ctrl-I> to enter Configuration Utility" (Figure 9). Press <Ctrl> + <I> to enter the RAID Configuration Utility.



```
Intel(R) Rapid Storage Technology - Option ROM - 13.0.0.2075
Copyright (C) Intel Corporation.   All Rights Reserved.

RAID Volumes :
None defined.

Physical Devices :
ID     Device Model       Serial #                    Size       Type/Status(Vol ID)
1      Hitachi HDS72105   JP1532FR3BWV7K              465.7GB    Non-RAID Disk
2      Hitachi HDS72105   JP1532ER046M2K              465.7GB    Non-RAID Disk

Press <CTRL - I> to enter Configuration Utility...
```

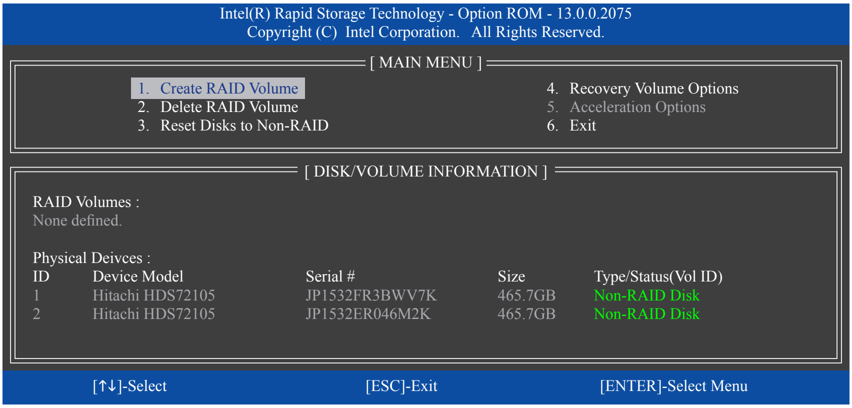
Figure 9

Step 2:

After you press <Ctrl> + <I>, the **MAIN MENU** screen will appear (Figure 10).

Create RAID Volume

If you want to create a RAID array, select **Create RAID Volume** in **MAIN MENU** and press <Enter>.

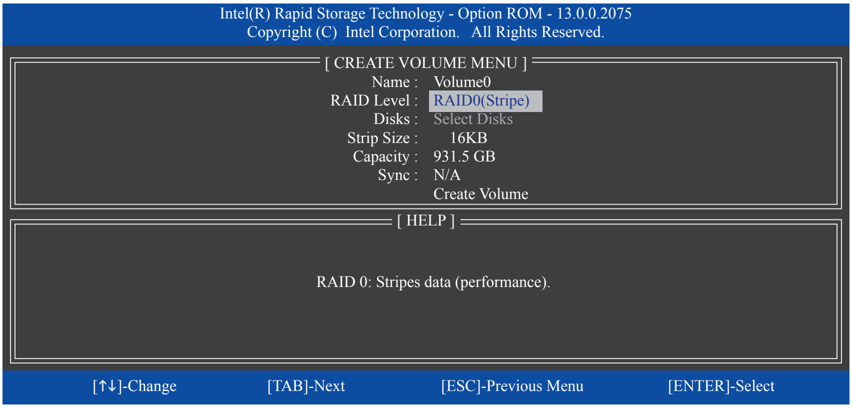


```
          Intel(R) Rapid Storage Technology - Option ROM - 13.0.0.2075
               Copyright (C)  Intel Corporation.   All Rights Reserved.

=============================== [ MAIN MENU ] ===============================
          1.  Create RAID Volume                 4.  Recovery Volume Options
          2.  Delete RAID Volume                 5.  Acceleration Options
          3.  Reset Disks to Non-RAID            6.  Exit

========================== [ DISK/VOLUME INFORMATION ] ==========================
RAID Volumes :
None defined.

Physical Deivces :
ID     Device Model          Serial #              Size       Type/Status(Vol ID)
1      Hitachi HDS72105      JP1532FR3BWV7K        465.7GB    Non-RAID Disk
2      Hitachi HDS72105      JP1532ER046M2K        465.7GB    Non-RAID Disk

     [↑↓]-Select               [ESC]-Exit               [ENTER]-Select Menu
```

Figure 10

Step 3:

After entering the **CREATE VOLUME MENU** screen, enter a volume name with 1~16 letters (letters cannot be special characters) under the **Name** item and press <Enter>. Then, select a RAID level (Figure 11). RAID levels supported include RAID 0, RAID 1, RAID 10, and RAID 5 (the selections available depend on the number of the hard drives being installed). Press <Enter> to proceed.

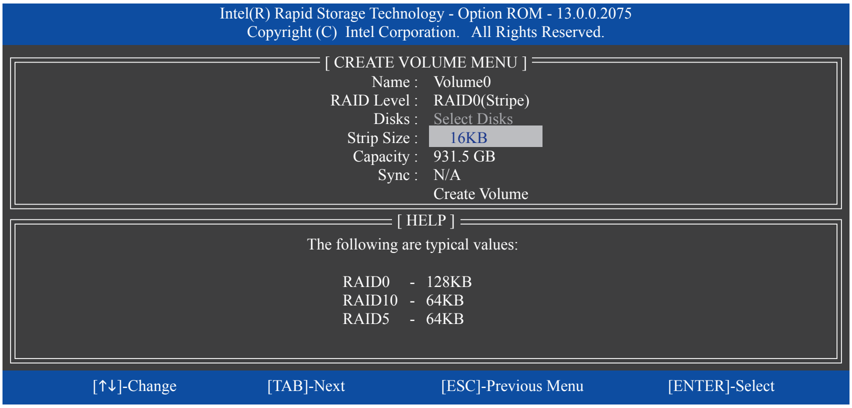


```
Intel(R) Rapid Storage Technology - Option ROM - 13.0.0.2075
Copyright (C)  Intel Corporation.   All Rights Reserved.

[ CREATE VOLUME MENU ]
       Name :   Volume0
 RAID Level :   RAID0(Stripe)
      Disks :   Select Disks
 Strip Size :      16KB
   Capacity :   931.5 GB
       Sync :   N/A
                Create Volume

[ HELP ]

RAID 0: Stripes data (performance).

[↑↓]-Change    [TAB]-Next    [ESC]-Previous Menu    [ENTER]-Select
```

Figure 11

Step 4:

Under **Disks** item, select the hard drives to be included in the RAID array. If only two hard drives are installed, they will be automatically assigned to the array. Set the stripe block size (Figure 12) if necessary. The stripe block size can be set from 4 KB to 128 KB. Once you have selected the stripe block size, press <Enter>.

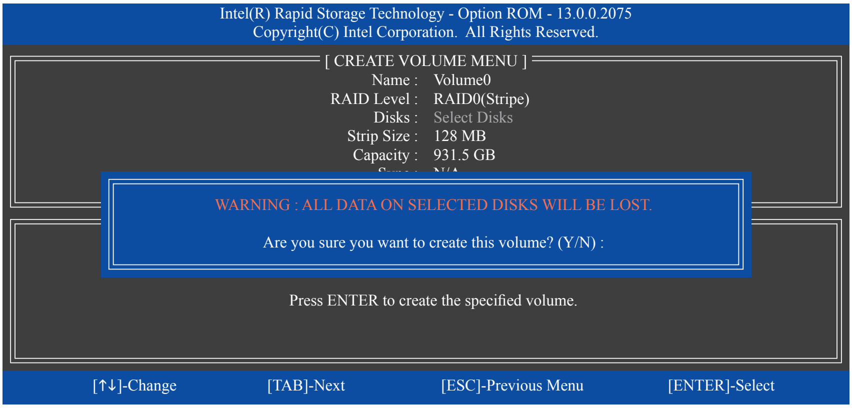


```
Intel(R) Rapid Storage Technology - Option ROM - 13.0.0.2075
Copyright (C)  Intel Corporation.   All Rights Reserved.

[ CREATE VOLUME MENU ]
       Name :   Volume0
 RAID Level :   RAID0(Stripe)
      Disks :   Select Disks
 Strip Size :      16KB
   Capacity :   931.5 GB
       Sync :   N/A
                Create Volume

[ HELP ]
The following are typical values:

RAID0    -  128KB
RAID10   -  64KB
RAID5    -  64KB

[↑↓]-Change    [TAB]-Next    [ESC]-Previous Menu    [ENTER]-Select
```

Figure 12

Step 5:

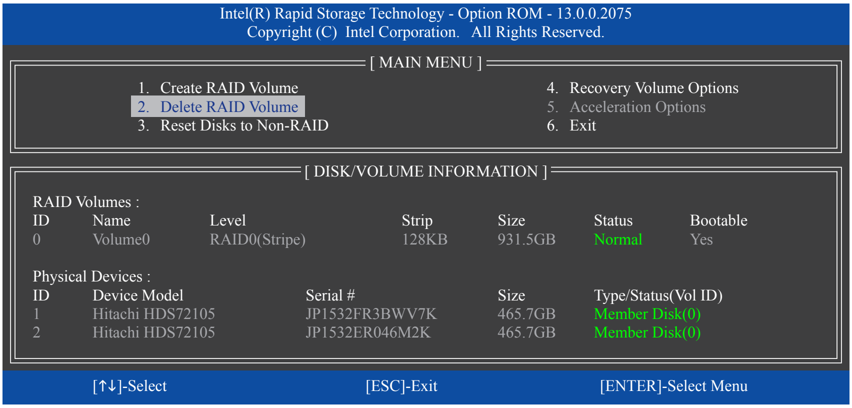
Enter the array capacity and press <Enter>. Finally press <Enter> on the **Create Volume** item to begin creating the RAID array. When prompted to confirm whether to create this volume, press <Y> to confirm or <N> to cancel (Figure 13).



```
Intel(R) Rapid Storage Technology - Option ROM - 13.0.0.2075
Copyright(C) Intel Corporation.  All Rights Reserved.

[ CREATE VOLUME MENU ]
       Name :   Volume0
 RAID Level :   RAID0(Stripe)
      Disks :   Select Disks
 Strip Size :   128 MB
   Capacity :   931.5 GB

WARNING : ALL DATA ON SELECTED DISKS WILL BE LOST.

Are you sure you want to create this volume? (Y/N) :

Press ENTER to create the specified volume.

[↑↓]-Change    [TAB]-Next    [ESC]-Previous Menu    [ENTER]-Select
```

Figure 13

When completed, you can see detailed information about the RAID array in the **DISK/VOLUME INFORMATION** section, including the RAID level, stripe block size, array name, and array capacity, etc. (Figure 14)



```
Intel(R) Rapid Storage Technology - Option ROM - 13.0.0.2075
Copyright (C)  Intel Corporation.   All Rights Reserved.

[ MAIN MENU ]
1.  Create RAID Volume              4.  Recovery Volume Options
2.  Delete RAID Volume              5.  Acceleration Options
3.  Reset Disks to Non-RAID         6.  Exit

[ DISK/VOLUME INFORMATION ]
RAID Volumes :
ID    Name        Level            Strip    Size      Status    Bootable
0     Volume0     RAID0(Stripe)    128KB    931.5GB   Normal    Yes

Physical Devices :
ID    Device Model      Serial #            Size      Type/Status(Vol ID)
1     Hitachi HDS72105  JP1532FR3BWV7K      465.7GB   Member Disk(0)
2     Hitachi HDS72105  JP1532ER046M2K      465.7GB   Member Disk(0)

[↑↓]-Select         [ESC]-Exit         [ENTER]-Select Menu
```

Figure 14

To exit the RAID BIOS utility, press <Esc> or select **6. Exit** in **MAIN MENU**.

Now, you can proceed to install the SATA RAID/AHCI driver and operating system.

Recovery Volume Options

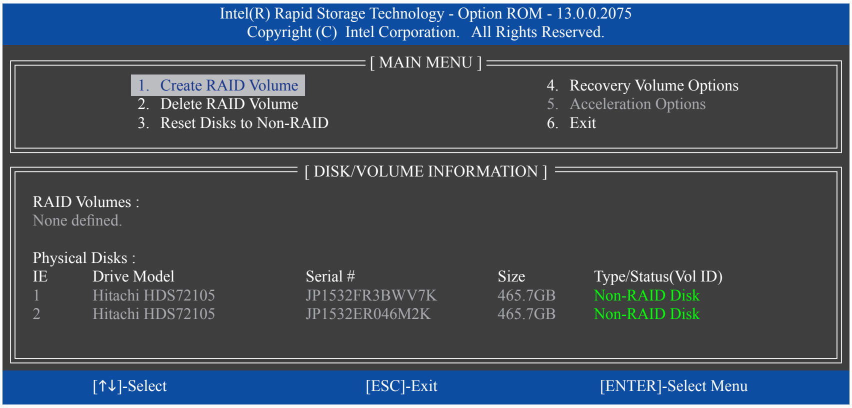
Intel® Rapid Recover Technology provides data protection by allowing users to easily restore data and system operation using a designated recovery drive. With the Rapid Recovery Technology, which employs RAID 1 functionality, users can copy the data from the master drive to the recovery drive; if needed, the data on the recovery drive can be restored back to the master drive.

Before you begin:

- The recovery drive must have equal or greater capacity than the master drive.
- A recovery volume can be created with two hard drives only. A recovery volume and a RAID array cannot co-exist in the system at the same time, that is, if you have already created a recovery volume, you are unable to create a RAID array.
- By default, only the master drive can be viewed in the operating system; the recovery drive is hidden.

Step 1:

Select **Create RAID Volume** in **MAIN MENU** and press <Enter> (Figure 15).

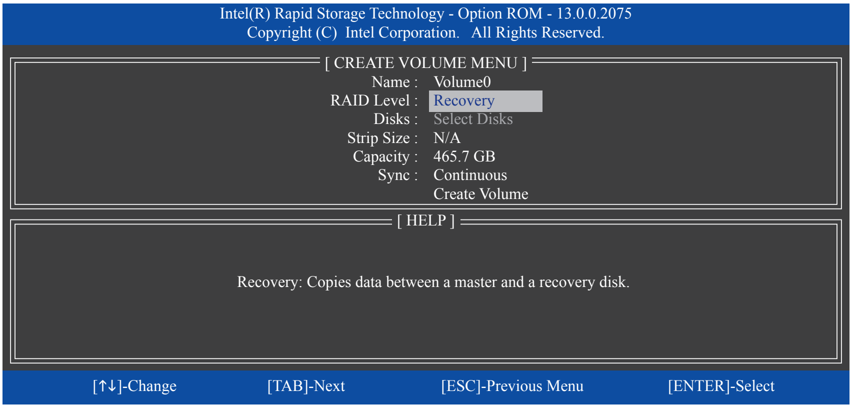


```
              Intel(R) Rapid Storage Technology - Option ROM - 13.0.0.2075
                 Copyright (C)  Intel Corporation.   All Rights Reserved.

                                    [ MAIN MENU ]
          1.  Create RAID Volume                     4.  Recovery Volume Options
          2.  Delete RAID Volume                     5.  Acceleration Options
          3.  Reset Disks to Non-RAID                6.  Exit

                             [ DISK/VOLUME INFORMATION ]
  RAID Volumes :
  None defined.

  Physical Disks :
  IE     Drive Model              Serial #             Size       Type/Status(Vol ID)
  1      Hitachi HDS72105         JP1532FR3BWV7K       465.7GB    Non-RAID Disk
  2      Hitachi HDS72105         JP1532ER046M2K       465.7GB    Non-RAID Disk

       [↑↓]-Select                   [ESC]-Exit                 [ENTER]-Select Menu
```

Figure 15

Step 2:

After entering the volume name, select **Recovery** under the **RAID Level** item and press <Enter> (Figure 16).

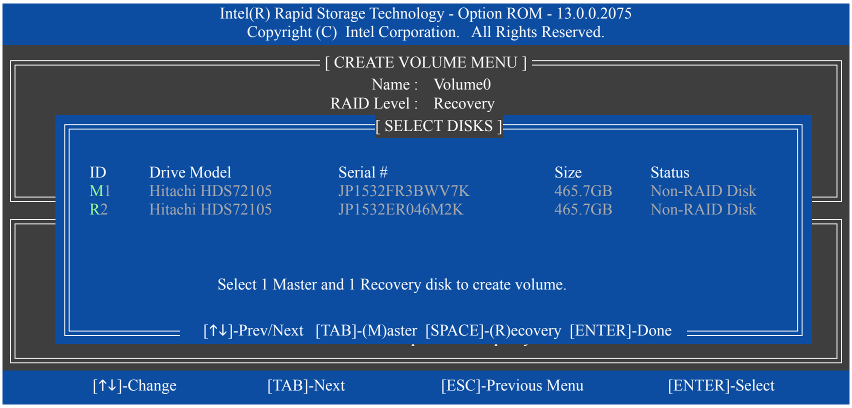


```
              Intel(R) Rapid Storage Technology - Option ROM - 13.0.0.2075
                 Copyright (C)  Intel Corporation.   All Rights Reserved.

                                [ CREATE VOLUME MENU ]
                                   Name :   Volume0
                             RAID Level :   Recovery
                                  Disks :   Select Disks
                              Strip Size :   N/A
                               Capacity :   465.7 GB
                                   Sync :   Continuous
                                            Create Volume

                                       [ HELP ]

                 Recovery: Copies data between a master and a recovery disk.

       [↑↓]-Change        [TAB]-Next        [ESC]-Previous Menu        [ENTER]-Select
```

Figure 16

Step 3:

Press <Enter> under the **Select Disks** item. In the **SELECT DISKS** box, press <Tab> on the hard drive you want to use for the master drive and press <Space> on the hard drive you want to use for the recovery drive. (Make sure the recovery drive has equal or larger capacity than the master drive.) Then press <Enter> to confirm (Figure 17).

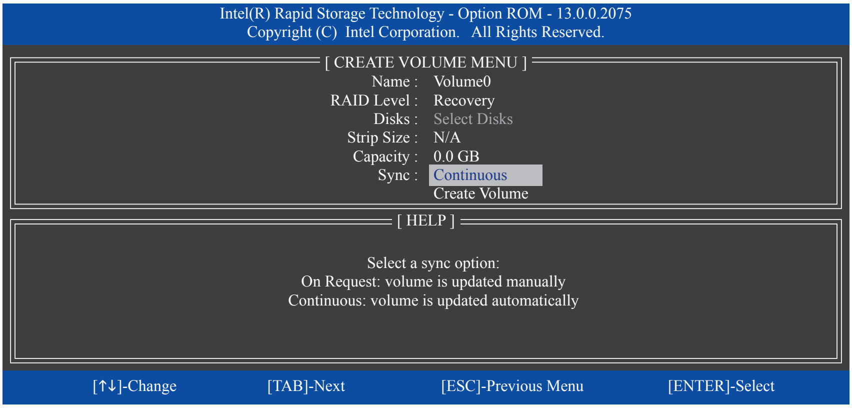


```
             Intel(R) Rapid Storage Technology - Option ROM - 13.0.0.2075
                  Copyright (C)  Intel Corporation.   All Rights Reserved.

                              [ CREATE VOLUME MENU ]
                                  Name :    Volume0
                            RAID Level :    Recovery
                               [ SELECT DISKS ]

   ID    Drive Model            Serial #               Size       Status
   M1    Hitachi HDS72105       JP1532FR3BWV7K         465.7GB    Non-RAID Disk
   R2    Hitachi HDS72105       JP1532ER046M2K         465.7GB    Non-RAID Disk

                  Select 1 Master and 1 Recovery disk to create volume.

       [↑↓]-Prev/Next   [TAB]-(M)aster  [SPACE]-(R)ecovery  [ENTER]-Done

      [↑↓]-Change        [TAB]-Next        [ESC]-Previous Menu        [ENTER]-Select
```

Figure 17

Step 4:

Under **Sync**, select **Continuous** or **On Request** (Figure 18). When set to **Continuous**, changes made to the data on the master drive will be automatically and continuously copied to the recovery drive when both hard drives are installed in the system. **On Request** allows users to update data from the master drive to the recovery drive manually using the Intel® Rapid Storage Technology utility in the operating system. **On Request** also allows users to restore the master drive to a previous state.



```
             Intel(R) Rapid Storage Technology - Option ROM - 13.0.0.2075
                  Copyright (C)  Intel Corporation.   All Rights Reserved.

                              [ CREATE VOLUME MENU ]
                                  Name :    Volume0
                            RAID Level :    Recovery
                                 Disks :    Select Disks
                            Strip Size :    N/A
                              Capacity :    0.0 GB
                                  Sync :    Continuous
                                            Create Volume

                                    [ HELP ]

                              Select a sync option:
                       On Request: volume is updated manually
                     Continuous: volume is updated automatically

      [↑↓]-Change        [TAB]-Next        [ESC]-Previous Menu        [ENTER]-Select
```

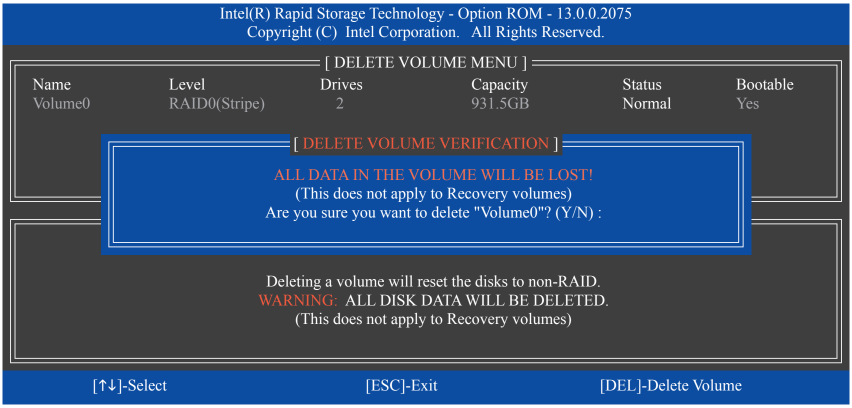
Figure 18

Step 5:

Finally press <Enter> on the **Create Volume** item to begin creating the Recovery Volume and follow the on-screen instructions to complete.

Delete RAID Volume

To delete a RAID array, select **Delete RAID Volume** in **MAIN MENU** and press <Enter>. In the **DELETE VOLUME MENU** section, use the up or down arrow key to select the array to be deleted and press <Delete>. When prompted to confirm your selection (Figure 19), press <Y> to confirm or <N> to abort.



Intel(R) Rapid Storage Technology - Option ROM - 13.0.0.2075
Copyright (C) Intel Corporation. All Rights Reserved.

[DELETE VOLUME MENU]

Name	Level	Drives	Capacity	Status	Bootable
Volume0	RAID0(Stripe)	2	931.5GB	Normal	Yes

[DELETE VOLUME VERIFICATION]

ALL DATA IN THE VOLUME WILL BE LOST!
(This does not apply to Recovery volumes)
Are you sure you want to delete "Volume0"? (Y/N) :

Deleting a volume will reset the disks to non-RAID.
WARNING: ALL DISK DATA WILL BE DELETED.
(This does not apply to Recovery volumes)

Figure 19

Acceleration Options

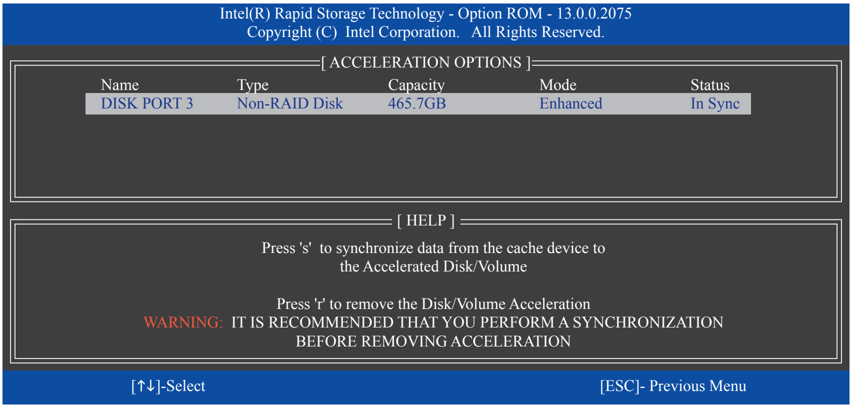
This option allows you to view the status of your accelerated drive/volume (Figure 20) created using the Intel® IRST utility. In case you are unable to run the Intel® IRST utility due to an application error or operating system issue, you will need to remove acceleration or manually enable synchronization (Maximized mode only) using this option in the RAID ROM utility.

Steps:

Select **Acceleration Options** in **MAIN MENU** and press <Enter>.

To remove the acceleration, select the accelerated drive/volume, press <R>, and press <Y> to confirm.

To synchronize data from the cache device to the accelerated drive/volume, press <S> and press <Y> to confirm.



Intel(R) Rapid Storage Technology - Option ROM - 13.0.0.2075
Copyright (C) Intel Corporation. All Rights Reserved.

[ACCELERATION OPTIONS]

Name	Type	Capacity	Mode	Status
DISK PORT 3	Non-RAID Disk	465.7GB	Enhanced	In Sync

[HELP]

Press 's' to synchronize data from the cache device to
the Accelerated Disk/Volume

Press 'r' to remove the Disk/Volume Acceleration
WARNING: IT IS RECOMMENDED THAT YOU PERFORM A SYNCHRONIZATION
BEFORE REMOVING ACCELERATION

Figure 20

3-2 Installing the SATA RAID/AHCI Driver and Operating System

With the correct BIOS settings, you are ready to install the operating system.

A. Installing the Operating System

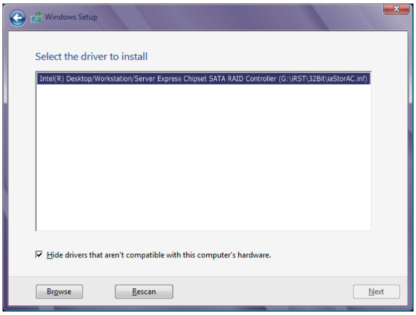
As Windows 7 already include Intel® SATA RAID/AHCI driver, you do not need to install separate RAID/AHCI driver during the Windows installation process. After the operating system is installed, we recommend that you install all required drivers from the motherboard driver disk using "Xpress Install" to ensure system performance and compatibility. To install Windows 8.1/8, refer to the steps below:

Step 1:
Copy the **IRST** folder under **BootDrv** in the driver disk to your USB thumb drive.

Step 2:
Boot from the Windows 8.1/8 setup disk and perform standard OS installation steps. When the screen requesting you to load the driver appears, select **Browse**.

Step 3:
Insert the USB thumb drive and then browse to the location of the driver. The locations of the drivers are as follows:
Windows 32-bit: \iRST\32Bit
Windows 64-bit: \iRST\64Bit

Step 4:
When a screen as shown in Figure 1 appears, select **Intel(R) Desktop/Workstation/Server Express Chipset SATA RAID Controller** and click **Next** to load the driver and continue the OS installation



Select the driver to install

Intel(R) Desktop/Workstation/Server Express Chipset SATA RAID Controller (G:\iRST\32Bit\iaStorAC.inf)

☑ Hide drivers that aren't compatible with this computer's hardware.

Figure 1

B. Rebuilding an Array

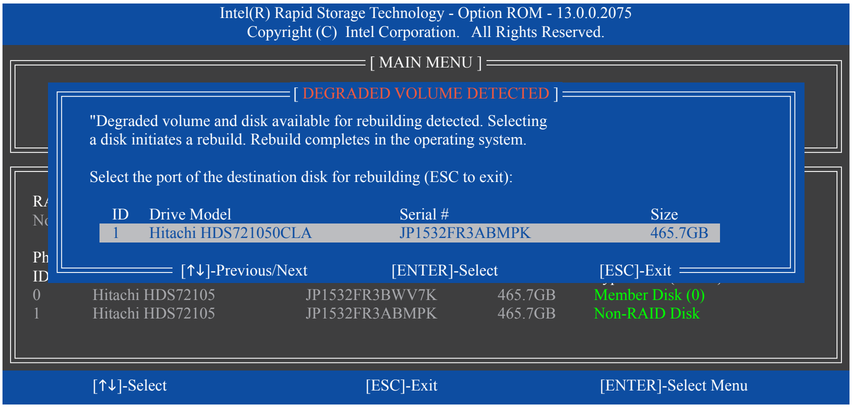
Rebuilding is the process of restoring data to a hard drive from other drives in the array. Rebuilding applies only to fault-tolerant arrays such as RAID 1, RAID 5 or RAID 10 arrays. The procedures below assume a new drive is added to replace a failed drive to rebuild a RAID 1 array. (Note: The new drive must have equal or greater capacity than the old one.)

Turn off your computer and replace the failed hard drive with a new one. Restart your computer.

- **Enabling Automatic Rebuild**

Step 1:

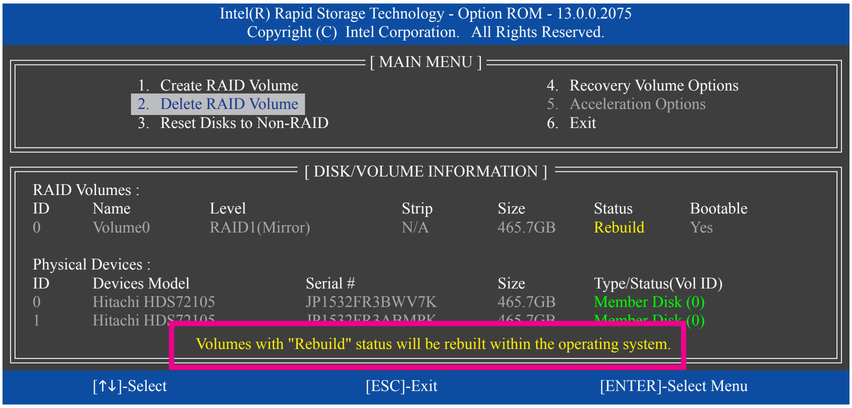
When the message "Press <Ctrl-I> to enter Configuration Utility" appears, press <Ctrl> + <I> to enter the RAID Configuration Utility. The following screen appears after you enter the RAID Configuration Utility.



```
              Intel(R) Rapid Storage Technology - Option ROM - 13.0.0.2075
                    Copyright (C)  Intel Corporation.   All Rights Reserved.

                                   [ MAIN MENU ]
                          [ DEGRADED VOLUME DETECTED ]
      "Degraded volume and disk available for rebuilding detected. Selecting
      a disk initiates a rebuild. Rebuild completes in the operating system.

      Select the port of the destination disk for rebuilding (ESC to exit):
RA
Nc      ID   Drive Model               Serial #                      Size
        1    Hitachi HDS721050CLA      JP1532FR3ABMPK                465.7GB
Ph
ID          [↑↓]-Previous/Next        [ENTER]-Select            [ESC]-Exit
0     Hitachi HDS72105       JP1532FR3BWV7K     465.7GB     Member Disk (0)
1     Hitachi HDS72105       JP1532FR3ABMPK     465.7GB     Non-RAID Disk

         [↑↓]-Select                  [ESC]-Exit               [ENTER]-Select Menu
```

Step 2:

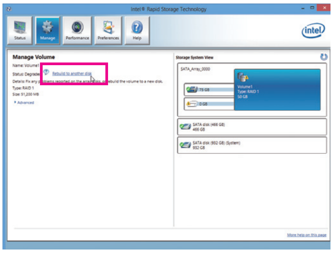
Select the new hard drive to add into the array to be rebuilt and press <Enter>. The following screen appears, indicating that an automatic rebuild will be performed after you enter the operating system. If you do not enable automatic rebuild on this stage, you have to manually rebuild the array in the operating system (see the next page for more details).



```
              Intel(R) Rapid Storage Technology - Option ROM - 13.0.0.2075
                    Copyright (C)  Intel Corporation.   All Rights Reserved.

                                   [ MAIN MENU ]
              1.  Create RAID Volume                    4.  Recovery Volume Options
              2.  Delete RAID Volume                    5.  Acceleration Options
              3.  Reset Disks to Non-RAID               6.  Exit

                            [ DISK/VOLUME INFORMATION ]
RAID Volumes :
ID    Name        Level           Strip     Size       Status     Bootable
0     Volume0     RAID1(Mirror)   N/A       465.7GB    Rebuild    Yes

Physical Devices :
ID    Devices Model          Serial #           Size        Type/Status(Vol ID)
0     Hitachi HDS72105       JP1532FR3BWV7K     465.7GB     Member Disk (0)
1     Hitachi HDS72105       JP1532FR3ABMPK     465.7GB     Member Disk (0)
      Volumes with "Rebuild" status will be rebuilt within the operating system.

         [↑↓]-Select                  [ESC]-Exit               [ENTER]-Select Menu
```

- **Performing the Rebuild in the Operating System**

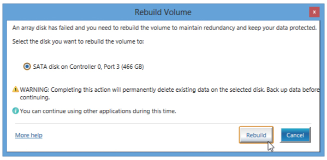
While in the operating system, make sure the chipset driver has been installed from the motherboard driver disk. Then launch the Intel® Rapid Storage Technology utility from the desktop.


Intel® Rapid Storage Technology
Status
Manage
Performance
Preferences
Help
intel
Manage Volume
Rebuild to another disk
Advanced
Storage System View
SATA_Array_0000
75 GB
0 GB
Volume1
Type: RAID 1
50 GB
SATA disk (466 GB)
466 GB
SATA disk (932 GB) (System)
932 GB
More help on this page

Name: Volume1
Status: Degraded
Type: RAID 1
Size: 51,200 MB

Step 1:

Go to the **Manage** menu and click **Rebuild to another disk** in **Manage Volume**.


Rebuild Volume
More help
Rebuild
Cancel

An array disk has failed and you need to rebuild the volume to maintain redundancy and keep your data protected.

Select the disk you want to rebuild the volume to:

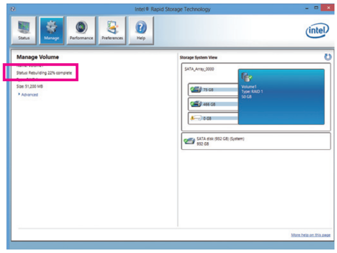
● SATA disk on Controller 0, Port 3 (466 GB)

WARNING: Completing this action will permanently delete existing data on the selected disk. Back up data before continuing.

You can continue using other applications during this time.

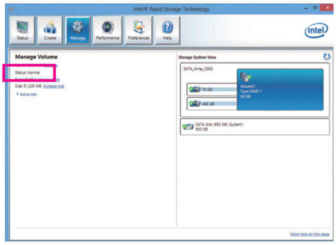
Step 2:

Select a new drive to rebuild the RAID and click **Rebuild**.


Intel® Rapid Storage Technology
Status
Manage
Performance
Preferences
Help
intel
Manage Volume
Advanced
Storage System View
SATA_Array_0000
75 GB
466 GB
0 GB
Volume1
Type: RAID 1
50 GB
SATA disk (932 GB) (System)
932 GB
More help on this page

Status: Rebuilding 22% complete
Size: 51,200 MB

The **Status** item on the left of the screen displays the rebuild progress.


Intel® Rapid Storage Technology
Status
Create
Manage
Performance
Preferences
Help
intel
Manage Volume
Increase size
Advanced
Storage System View
SATA_Array_0000
75 GB
466 GB
Volume1
Type: RAID 1
50 GB
SATA disk (932 GB) (System)
932 GB
More help on this page

Status: Normal
Size: 51,200 MB

Step 3:

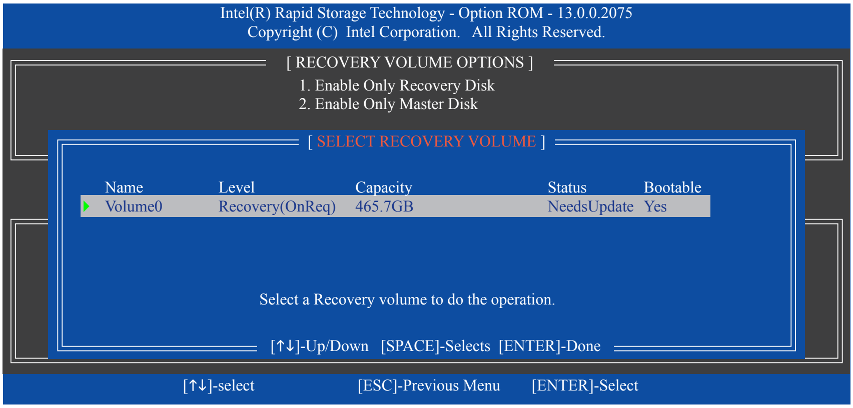
After the RAID 1 volume rebuilding, the **Status** will display as **Normal**.

- **Restoring the Master Drive to a Previous State (for Recovery Volume only)**

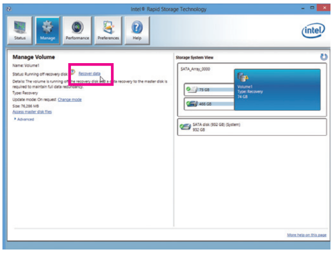
When two hard drives are set to Recovery Volume in Update on Request mode, you can restore the master drive data to the last backup state when needed. For example, in case the master drive detects a virus, you can restore the recovery drive data to the master drive.

Step 1:

Select **4. Recovery Volume Options** in the **MAIN MENU** of the Intel® RAID Configuration Utility. On the **RECOVERY VOLUMES OPTIONS** menu, select **Enable Only Recovery Disk** to show the recovery drive in the operating system. Follow the on-screen instructions to complete and exit the RAID Configuration Utility.



```
Intel(R) Rapid Storage Technology - Option ROM - 13.0.0.2075
Copyright (C)  Intel Corporation.   All Rights Reserved.

[ RECOVERY VOLUME OPTIONS ]
1. Enable Only Recovery Disk
2. Enable Only Master Disk

[ SELECT RECOVERY VOLUME ]

Name        Level             Capacity          Status        Bootable
Volume0     Recovery(OnReq)   465.7GB           NeedsUpdate   Yes

Select a Recovery volume to do the operation.

[↑↓]-Up/Down   [SPACE]-Selects  [ENTER]-Done

[↑↓]-select            [ESC]-Previous Menu       [ENTER]-Select
```

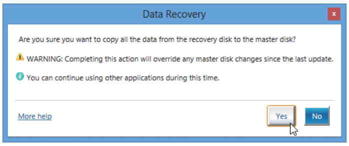


Intel® Rapid Storage Technology
Status
Manage
Performance
Preferences
Help
intel
Storage System View
SATA_Array_0000
75 GB
466 GB
Volume1
Type: Recovery
74 GB
SATA disk (932 GB) (System)
932 GB
More help on this page

Manage Volume
Name: Volume1
Status: Running off recovery disk Recover data
Details: The volume is running off the recovery disk and a data recovery to the master disk is required to maintain full data redundancy.
Type: Recovery
Update mode: On request Change mode
Size: 76,286 MB
Access master disk files
Advanced

Step 2:

Go to the **Manage** menu of the Intel® Rapid Storage Technology utility and click **Recover data** in **Manage Volume**.



Data Recovery

Are you sure you want to copy all the data from the recovery disk to the master disk?

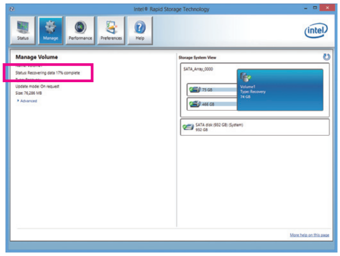
WARNING: Completing this action will override any master disk changes since the last update.

You can continue using other applications during this time.

More help
Yes
No

Step 3:

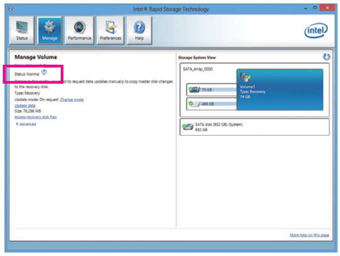
Click **Yes** to begin the data recovery.



Intel® Rapid Storage Technology
Status
Manage
Performance
Preferences
Help
intel
Storage System View
SATA_Array_0000
75 GB
466 GB
Volume1
Type: Recovery
74 GB
SATA disk (932 GB) (System)
932 GB
More help on this page

Manage Volume
Status: Recovering data 17% complete
Update mode: On request
Size: 76,286 MB
Advanced

The **Status** item on the left of the screen displays the rebuild progress.



Intel® Rapid Storage Technology
Status
Manage
Performance
Preferences
Help
intel
Storage System View
SATA_Array_0000
75 GB
466 GB
Volume1
Type: Recovery
74 GB
SATA disk (932 GB) (System)
932 GB
More help on this page

Manage Volume
Status: Normal
d to request data updates manually to copy master disk changes to the recovery disk.
Type: Recovery
Update mode: On request Change mode
Update data
Size: 76,286 MB
Access recovery disk files
Advanced

Step 4:

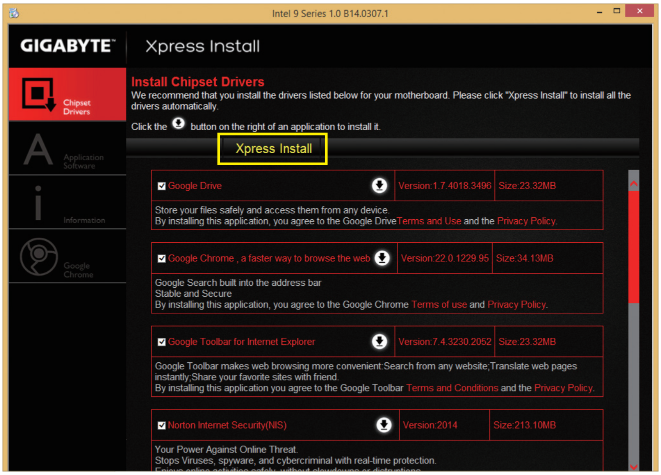
After the recovery volume is completed, the **Status** will display as **Normal**.

Chapter 4 Drivers Installation

- Before installing the drivers, first install the operating system. (The following instructions use Windows 8.1 as the example operating system.)
- After installing the operating system, insert the motherboard driver disk into your optical drive. Click on the message "Tap to choose what happens with this disc" on the top-right corner of the screen and select "Run **Run**.exe." (Or go to My Computer, double-click the optical drive and execute the **Run**.exe program.)

4-1 Chipset Drivers

"Xpress Install" will automatically scan your system and then list all of the drivers that are recommended to install. You can click the **Xpress Install** button and "Xpress Install" will install all of the selected drivers. Or click the arrow ⬇ icon to individually install the drivers you need.



Install Chipset Drivers

We recommend that you install the drivers listed below for your motherboard. Please click "Xpress Install" to install all the drivers automatically.

Click the ⬇ button on the right of an application to install it.

☑ Google Drive ⬇	Version:1.7.4018.3496	Size:23.32MB

Store your files safely and access them from any device.
By installing this application, you agree to the Google DriveTerms and Use and the Privacy Policy.

☑ Google Chrome , a faster way to browse the web ⬇	Version:22.0.1229.95	Size:34.13MB

Google Search built into the address bar
Stable and Secure
By installing this application, you agree to the Google Chrome Terms of use and Privacy Policy.

☑ Google Toolbar for Internet Explorer ⬇	Version:7.4.3230.2052	Size:23.32MB

Google Toolbar makes web browsing more convenient:Search from any website;Translate web pages instantly;Share your favorite sites with friend.
By installing this application you agree to the Google Toolbar Terms and Conditions and the Privacy Policy.

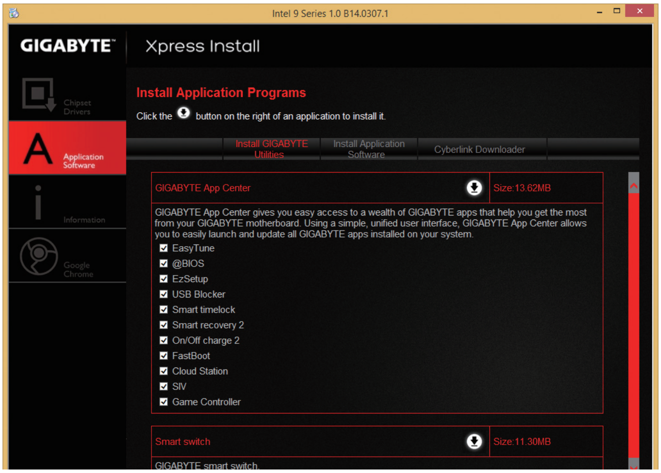
☑ Norton Internet Security(NIS) ⬇	Version:2014	Size:213.10MB

Your Power Against Online Threat.
Stops Viruses, spyware, and cybercriminal with real-time protection.

- Please ignore the popup dialog box(es) (e.g. the **Found New Hardware Wizard**) displayed when "Xpress Install" is installing the drivers. Failure to do so may affect the driver installation.
- Some device drivers will restart your system automatically during the driver installation. After the system restart, "Xpress Install" will continue to install other drivers.

4-2 Application Software

This page displays the apps that GIGABYTE develops and some free software. You can select the apps you want and click the **Install** icon to begin the installation.


Intel 9 Series 1.0 B14.0307.1
GIGABYTE
Xpress Install
Chipset Drivers
Application Software
Information
Google Chrome
Install GIGABYTE Utilities
Install Application Software
Cyberlink Downloader

Install Application Programs

Click the button on the right of an application to install it.

GIGABYTE App Center Size:13.62MB

GIGABYTE App Center gives you easy access to a wealth of GIGABYTE apps that help you get the most from your GIGABYTE motherboard. Using a simple, unified user interface, GIGABYTE App Center allows you to easily launch and update all GIGABYTE apps installed on your system.

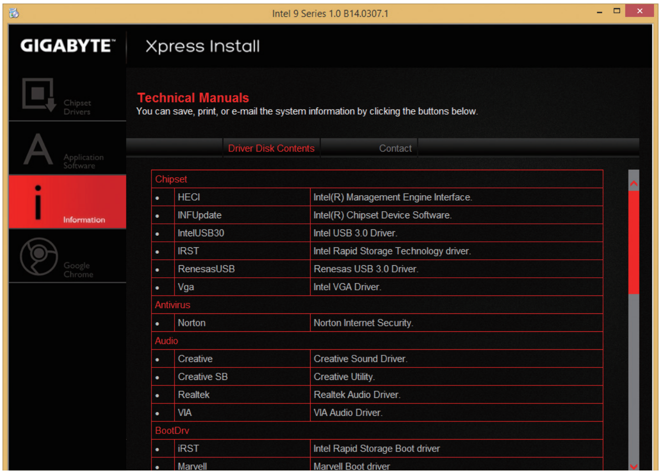
- ☑ EasyTune
- ☑ @BIOS
- ☑ EzSetup
- ☑ USB Blocker
- ☑ Smart timelock
- ☑ Smart recovery 2
- ☑ On/Off charge 2
- ☑ FastBoot
- ☑ Cloud Station
- ☑ SIV
- ☑ Game Controller

Smart switch Size:11.30MB

GIGABYTE smart switch.

4-3 Information

This page provides detailed information on the drivers on the driver disk. The **Contact** page provides contact information of the GIGABYTE Taiwan headquarter. You can click the URL on this page to link to the GIGABYTE website to check more information on the GIGABYTE headquarter or worldwide branch offices.


Intel 9 Series 1.0 B14.0307.1
GIGABYTE
Xpress Install
Chipset Drivers
Application Software
Information
Google Chrome
Driver Disk Contents
Contact

Technical Manuals

You can save, print, or e-mail the system information by clicking the buttons below.

Chipset		
•	HECI	Intel(R) Management Engine Interface.
•	INFUpdate	Intel(R) Chipset Device Software.
•	IntelUSB30	Intel USB 3.0 Driver.
•	IRST	Intel Rapid Storage Technology driver.
•	RenesasUSB	Renesas USB 3.0 Driver.
•	Vga	Intel VGA Driver.
Antivirus		
•	Norton	Norton Internet Security.
Audio		
•	Creative	Creative Sound Driver.
•	Creative SB	Creative Utility.
•	Realtek	Realtek Audio Driver.
•	VIA	VIA Audio Driver.
BootDrv		
•	iRST	Intel Rapid Storage Boot driver
•	Marvell	Marvell Boot driver

Chapter 5 Unique Features

5-1 BIOS Update Utilities

GIGABYTE motherboards provide two unique BIOS update tools, Q-Flash™ and @BIOS™. GIGABYTE Q-Flash and @BIOS are easy-to-use and allow you to update the BIOS without the need to enter MS-DOS mode. Additionally, this motherboard features the DualBIOS™ design, which enhances protection for the safety and stability of your computer by adding one more physical BIOS chip.

What is DualBIOS™?

Motherboards that support DualBIOS have two BIOS onboard, a main BIOS and a backup BIOS. Normally, the system works on the main BIOS. However, if the main BIOS is corrupted or damaged, the backup BIOS will take over on the next system boot and copy the BIOS file to the main BIOS to ensure normal system operation. For the sake of system safety, users cannot update the backup BIOS manually.

What is Q-Flash™?

With Q-Flash you can update the system BIOS without having to enter operating systems like MS-DOS or Window first. Embedded in the BIOS, the Q-Flash tool frees you from the hassles of going through complicated BIOS flashing process.

What is @BIOS™?

@BIOS allows you to update the system BIOS while in the Windows environment. @BIOS will download the latest BIOS file from the nearest @BIOS server site and update the BIOS.

5-1-1 Updating the BIOS with the Q-Flash Utility

A. Before You Begin

1. From GIGABYTE's website, download the latest compressed BIOS update file that matches your motherboard model.
2. Extract the file and save the new BIOS file (e.g. G1SNIPERZ97.F1) to your USB flash drive, or hard drive. Note: The USB flash drive or hard drive must use FAT32/16/12 file system.
3. Restart the system. During the POST, press the <End> key to enter Q-Flash. Note: You can access Q-Flash by either pressing the <End> key during the POST or pressing the <F8> key in BIOS Setup. However, if the BIOS update file is saved to a hard drive in RAID/AHCI mode or a hard drive attached to an independent SATA controller, use the <End> key during the POST to access Q-Flash.

Because BIOS flashing is potentially risky, please do it with caution. Inadequate BIOS flashing may result in system malfunction.

B. Updating the BIOS

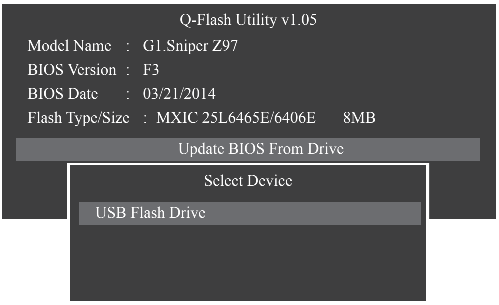
In the main menu of Q-Flash, use the keyboard or mouse to select an item to execute. When updating the BIOS, choose the location where the BIOS file is saved. The following procedure assumes that you save the BIOS file to a USB flash drive.

Step 1:

1. Insert the USB flash drive containing the BIOS file into the computer. In the main menu of Q-Flash, select **Update BIOS From Drive**.

- The **Save BIOS to Drive** option allows you to save the current BIOS file.
- Q-Flash only supports USB flash drive or hard drives using FAT32/16/12 file system.
- If the BIOS update file is saved to a hard drive in RAID/AHCI mode or a hard drive attached to an independent SATA controller, use the <End> key during the POST to access Q-Flash.

2. Select **USB Flash Drive**.



```
Q-Flash Utility v1.05
Model Name       :  G1.Sniper Z97
BIOS Version     :  F3
BIOS Date        :  03/21/2014
Flash Type/Size  :  MXIC 25L6465E/6406E     8MB
Update BIOS From Drive
Select Device
USB Flash Drive
```

3. Select the BIOS update file.

Make sure the BIOS update file matches your motherboard model.

Step 2:

The process of the system reading the BIOS file from the USB flash drive is displayed on the screen. When the message "Are you sure to update BIOS?" appears, select **Yes** to begin the BIOS update. The monitor will display the update process.

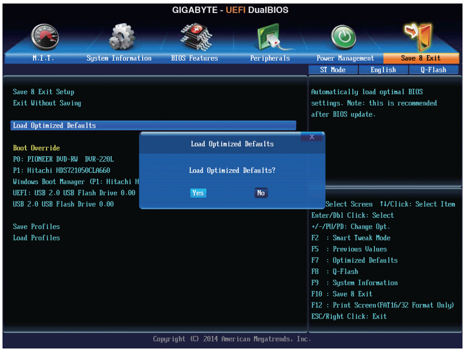
- **Do not turn off or restart the system when the system is reading/updating the BIOS.**
- **Do not remove the USB flash drive or hard drive when the system is updating the BIOS.**

Step 3:

The system will restart after the update process is complete.

Step 4:

During the POST, press <Delete> to enter BIOS Setup. Select **Load Optimized Defaults** on the **Save & Exit** screen and press <Enter> to load BIOS defaults. System will re-detect all peripheral devices after a BIOS update, so we recommend that you reload BIOS defaults.


GIGABYTE - UEFI DualBIOS
M.I.T.
System Information
BIOS Features
Peripherals
Power Management
Save & Exit
ST Mode
English
Q-Flash
Save & Exit Setup
Exit Without Saving
Load Optimized Defaults
Boot Override
P0: PIONEER DVD-RW DVR-220L
P1: Hitachi HDS721050CLA660
Windows Boot Manager (P1: Hitachi H
UEFI: USB 2.0 USB Flash Drive 0.00
USB 2.0 USB Flash Drive 0.00
Save Profiles
Load Profiles
X
Yes
No

Automatically load optimal BIOS settings. Note: this is recommended after BIOS update.

Load Optimized Defaults

Load Optimized Defaults?

```
Select Screen  ↑↓/Click: Select Item
Enter/Dbl Click: Select
+/-/PU/PD: Change Opt.
F2  : Smart Tweak Mode
F5  : Previous Values
F7  : Optimized Defaults
F8  : Q-Flash
F9  : System Information
F10 : Save & Exit
F12 : Print Screen(FAT16/32 Format Only)
ESC/Right Click: Exit
```

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Select **Yes** to load BIOS defaults

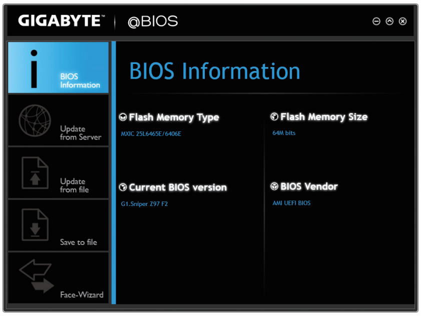
Step 5:

Select **Save & Exit Setup** and press <Enter>. And then select **Yes** to save settings to CMOS and exit BIOS Setup. The procedure is complete after the system restarts.

5-1-2 Updating the BIOS with the @BIOS Utility

A. Before You Begin

1. In Windows, close all applications and TSR (Terminate and Stay Resident) programs. This helps prevent unexpected failures when performing a BIOS update.
2. If the BIOS is being updated via the Internet, ensure the Internet connection is stable and do NOT interrupt the Internet connection (for example, avoid a power loss or switching off the Internet). Failure to do so may result in a corrupted BIOS or a system that is unable to start.
3. GIGABYTE product warranty does not cover any BIOS damage or system failure resulting from an inadequate BIOS flashing.



Flash Memory Type: MXIC 25L6465E/6406E

Flash Memory Size: 64M bits

Current BIOS version: G1.Sniper Z97 F2

BIOS Vendor: AMI UEFI BIOS

B. Using @BIOS

1. **Update the BIOS Using the Internet Update Function:**

Click **Update from Server**, select the @BIOS server site closest to your location and then download the BIOS file that matches your motherboard model. Follow the on-screen instructions to complete.

If the BIOS update file for your motherboard is not present on the @BIOS server site, please manually download the BIOS update file from GIGABYTE's website and follow the instructions in "Update the BIOS without Using the Internet Update Function" below.

2. **Update the BIOS without Using the Internet Update Function:**

Click **Update from File**, then select the location where you save the BIOS update file obtained from the Internet or through other source. Follow the on-screen instructions to complete.

3. **Save the Current BIOS File:**

Click **Save to File** to save the current BIOS file.

4. **Change the Boot-up Logo:**

Click **Upload new image** in Face-Wizard and you will be able to change the boot-up logo with your own picture, creating a personalized boot-up screen. Click **Backup current image** to save the currently used boot-up logo.

Supported image formats include jpg, bmp, and gif.

C. After Updating the BIOS

Restart your system after updating the BIOS.

- Make sure that the BIOS file to be flashed matches your motherboard model. Updating the BIOS with an incorrect BIOS file could cause your system not to boot.
- Do not turn off the system or remove the power during the BIOS update process, or the BIOS may corrupt and the system may not boot.

5-2 APP Center

GIGABYTE App Center gives you easy access to a wealth of GIGABYTE apps that help you get the most from your GIGABYTE motherboard (Note). Using a simple, unified user interface, GIGABYTE App Center allows you to easily launch all GIGABYTE apps installed on your system, check related updates online, and download the apps, drivers, and BIOS.

Running the APP Center

Insert the motherboard driver disk. On the Autorun screen, go to **Application Software\Install GIGABYTE Utilities** to install GIGABYTE App Center and the selected apps. Restart your computer after the installation is complete. In Desktop mode, click the App Center icon in the notification area to launch the App Center utility (Figure 1). On the main menu, you can select an app to run or click **Live Update** to update an app online.

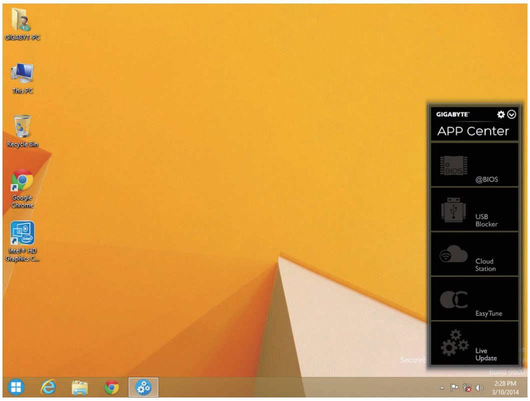

GIGABYTE PIC
This PC
Recycle Bin
Google Chrome
Intel® HD Graphics C...
GIGABYTE
APP Center
@BIOS
USB Blocker
Cloud Station
EasyTune
Live Update
2:28 PM
3/10/2014

Figure 1

If the App Center is closed, you can restart it by clicking the App Center icon on the Apps menu (Figure 2).

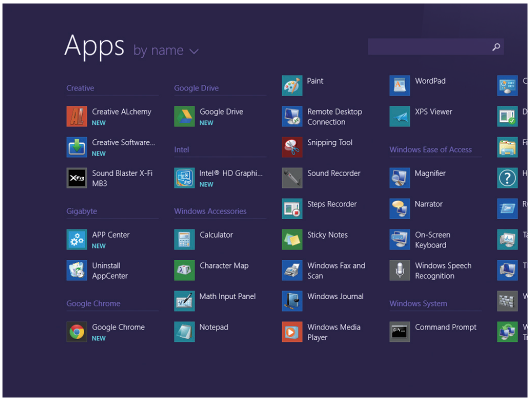

Apps by name
Creative
Creative ALchemy NEW
Creative Software... NEW
Sound Blaster X-Fi MB3
Gigabyte
APP Center NEW
Uninstall AppCenter
Google Chrome
Google Chrome NEW
Google Drive
Google Drive NEW
Intel
Intel® HD Graphi... NEW
Windows Accessories
Calculator
Character Map
Math Input Panel
Notepad
Paint
Remote Desktop Connection
Snipping Tool
Sound Recorder
Steps Recorder
Sticky Notes
Windows Fax and Scan
Windows Journal
Windows Media Player
WordPad
XPS Viewer
Windows Ease of Access
Magnifier
Narrator
On-Screen Keyboard
Windows Speech Recognition
Windows System
Command Prompt

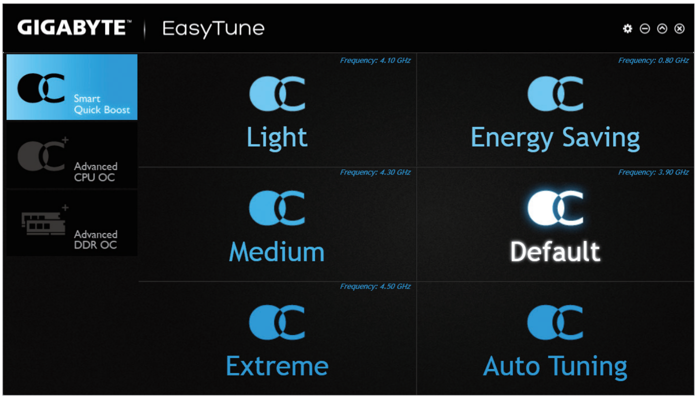
Figure 2

(Note) Available applications in APP Center may differ by motherboard model. Supported functions of each application may also differ depending on motherboard specifications.

5-2-1 EasyTune

GIGABYTE's EasyTune is a simple and easy-to-use interface that allows users to fine-tune their system settings or do overclock/overvoltage in Windows environment.

The EasyTune Interface


GIGABYTE™ | EasyTune
Smart Quick Boost
Advanced CPU OC
Advanced DDR OC
Frequency: 4.10 GHz
Light
Frequency: 0.80 GHz
Energy Saving
Frequency: 4.30 GHz
Medium
Frequency: 3.90 GHz
Default
Frequency: 4.50 GHz
Extreme
Auto Tuning

Tabs Information

Tab	Description
Smart Quick Boost	The **Smart Quick Boost** tab provides you with different levels of CPU frequency to choose to achieve desired system performance. After making changes, be sure to restart your system for these changes to take effect.
Advanced CPU OC	The **Advanced CPU OC** tab allows you to set CPU base clock, frequency, and voltages, and integrated graphics frequency. You can save the current settings to a profile. You can create up to 2 profiles.
Advanced DDR OC	The **Advanced DDR OC** tab allows you to set the memory clock.

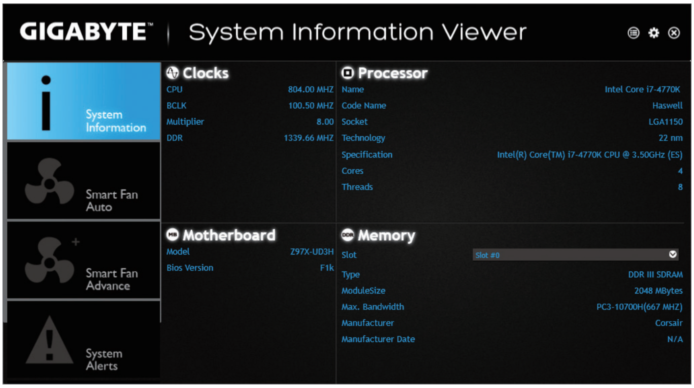
Available functions in EasyTune may differ by motherboard model. Grayed-out area(s) indicates that the item is not configurable or the function is not supported.

Incorrectly doing overclock/overvoltage may result in damage to the hardware components such as CPU, chipset, and memory and reduce the useful life of these components. Before you do the overclock/overvoltage, make sure that you fully know each function of EasyTune, or system instability or other unexpected results may occur.

5-2-2 System Information Viewer

GIGABYTE System Information Viewer allows you to monitor and adjust the fan speed in the operating system. You can also display the hardware monitor information on the desktop to view the system status at any time.

The System Information Viewer Interface



Clocks

CPU	804.00 MHZ
BCLK	100.50 MHZ
Multiplier	8.00
DDR	1339.66 MHZ

Processor

Name	Intel Core i7-4770K
Code Name	Haswell
Socket	LGA1150
Technology	22 nm
Specification	Intel(R) Core(TM) i7-4770K CPU @ 3.50GHz (ES)
Cores	4
Threads	8

Motherboard

Model	Z97X-UD3H
Bios Version	F1k

Memory

Slot	Slot #0
Type	DDR III SDRAM
ModuleSize	2048 MBytes
Max. Bandwidth	PC3-10700H(667 MHZ)
Manufacturer	Corsair
Manufacturer Date	N/A

Tabs Information

Tab	Description
System Information	The **System Information** tab provides information on the installed CPU and motherboard and the BIOS version.
Smart Fan Auto	The **Smart Fan Auto** tab allows you to specify a Smart Fan mode
Smart Fan Advance	The **Smart Fan Advance** tab allows you to adjust the smart fan speed. The fans will run at different speeds according to system temperatures. Using the **Smart Fan** option you can adjust the fan's workload according system temperatures or you can fix the fan speeds using the **RPM Fixed Mode** option. Click the **Calibrate** button and the fan speed will be shown in relation to overall fan workload after calibration. The **Reset** button can revert the fan settings back to the last saved values.
System Alerts	The **System Alerts** tab allows you to monitor hardware temperature, voltage and fan speed, and set temperature/fan speed alarm.
Record	The **Record** tab allows you to record changes in system voltages, temperatures, and fan speeds. Please note, the recording will stop if you exit the **Record** tab during the recording process.

The speed control function requires the use of a fan with fan speed control design.

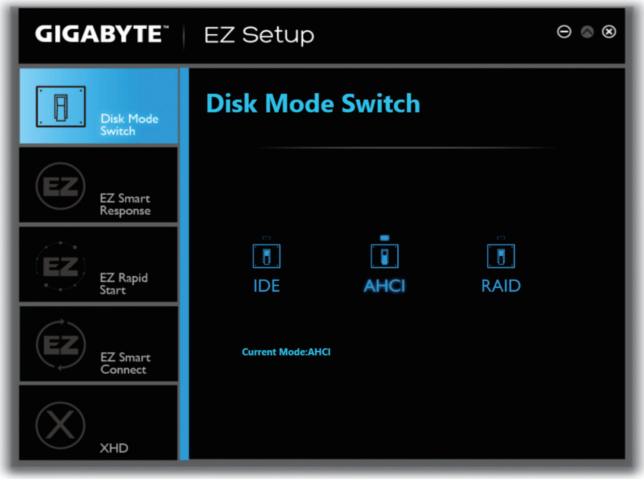
5-2-3 EZ Setup

The GIGABYTE EZ Setup utility includes the following 'EZ' setups applications that will offer greatly simplified install and configuration procedures: Disk Mode Switch, EZ Smart Response, EZ Rapid Start, EZ Smart Connect, and XHD.

Disk Mode Switch

Disk Mode Switch allows you to switch the operating mode for your hard drive even after it's been installed with an operating system. Supported operating modes include IDE, AHCI, and RAID. You can select a disk mode and restart your computer after the selection.

- Native UEFI mode is not supported.
- Be sure to reinstall the Intel® Rapid Storage Technology utility after you switch the disk mode.


GIGABYTE™
EZ Setup
Disk Mode Switch
EZ Smart Response
EZ Rapid Start
EZ Smart Connect
XHD
Disk Mode Switch
IDE
AHCI
RAID

Current Mode:AHCI

EZ Smart Response

A. System Requirements

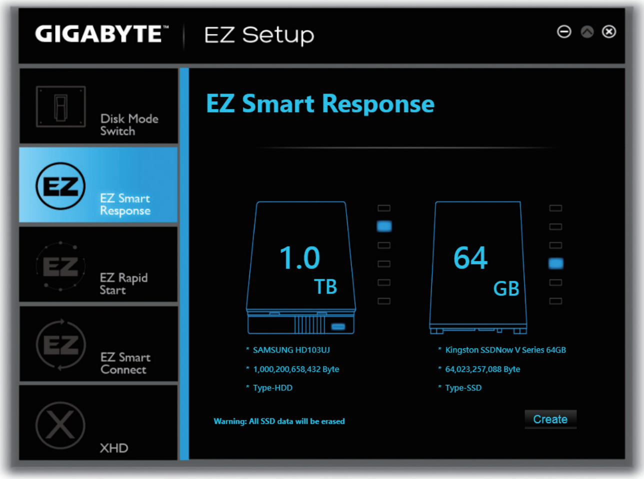
1. An Intel® Chipset-based motherboard supporting this feature
2. Intel® Core series processor
3. Intel® SATA controllers set to RAID mode
4. Intel® Rapid Storage Technology utility installed (Note 1)
5. A conventional SATA disk and an SSD (Note 2)
6. Windows 7 with SP1/Windows 8/Windows 8.1 (Note 3)

If you have installed the operating system before configuring the Smart Response Technology, all original data on the SSD will be lost once you enable RAID mode (Note 4). It is recommended that you back up the hard disk before enabling the Smart Response Technology.

B. Using EZ Smart Response

Select **EZ Smart Response** and click **Create**.

To disable this function, click **Delete**.



- SAMSUNG HD103UJ
- 1,000,200,658,432 Byte
- Type-HDD

- Kingston SSDNow V Series 64GB
- 64,023,257,088 Byte
- Type-SSD

Warning: All SSD data will be erased

(Note 1) Before start, make sure you have installed the Intel® Rapid Storage Technology utility (version 11.5 or above).

(Note 2) The SSD works as a cache of the hard disk. The maximum cache memory size is 64 GB. If you use an SSD larger than 64 GB, the space beyond 64 GB can still be used for storing your data.

(Note 3) The operating system must be installed to the SATA disk.

(Note 4) Regardless of the BIOS settings, be it IDE or AHCI mode, the system will be forced to RAID mode.

EZ Rapid Start

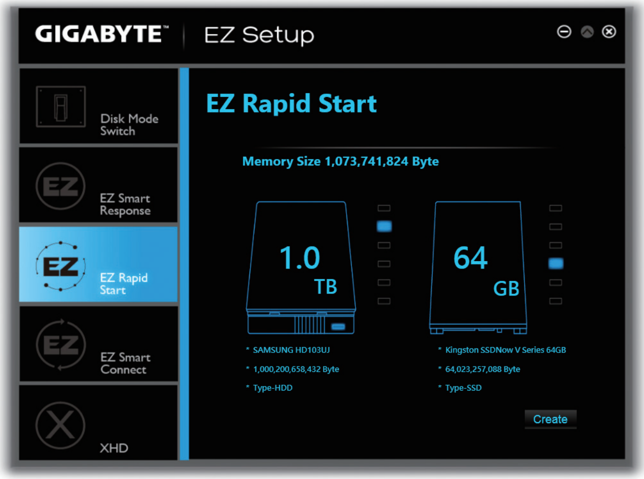
A. System Requirements

1. Intel® Rapid Start Technology enabled in BIOS Setup
2. An SSD with size larger than the total system memory
3. Windows 7 with SP1/Windows 8/Windows 8.1
4. AHCI/RAID mode supported please note if the SSD has been assigned as a member of a RAID array, it cannot be used to set up and Intel® Rapid Start store partition); IDE mode not supported (Note)

B. Using EZ Rapid Start

Select **EZ Rapid Start** and click **Create**. Then install the Intel® Rapid Start Technology utility and restart your computer to complete.

To disable this function, click **Delete**.



Memory Size 1,073,741,824 Byte

* SAMSUNG HD103UJ
* 1,000,200,658,432 Byte
* Type-HDD

* Kingston SSDNow V Series 64GB
* 64,023,257,088 Byte
* Type-SSD

- The default compressed space is the system memory size plus 2 GB. For example, if the system memory size is 8 GB, the default compressed space is 8 GB plus 2 GB, so the SSD capacity will decrease by 10 GB. If EZ Rapid Start is disabled, the decreased 10 GB will be returned to the SSD.
- If you want to upgrade your system memory, disable EZ Rapid Start first and re-install it to ensure it can work normally.

(Note) If the motherboard Chipset supports RAID, EZ Rapid Start will force the Intel® SATA controllers into RAID mode. If not, the Intel® SATA controllers will be forced into AHCI mode.

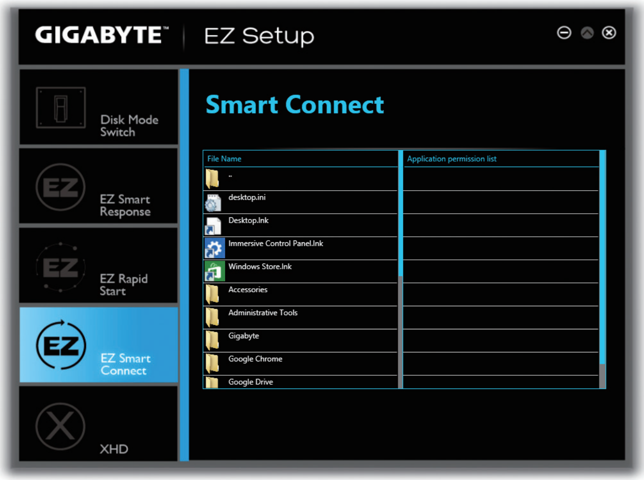
EZ Smart Connect

A. System Requirements

1. Intel® Smart Connect Technology enabled in BIOS Setup
2. Windows 7 with SP1/Windows 8/Windows 8.1
3. Intel® Smart Connect Technology utility installed
4. Properly-working network connection
5. Programs added to the White List must be turned on (Note)

B. Using EZ Smart Connect

Select **EZ Smart Connect**. Under **File Name**, select the apps to be auto-updated by Smart Connect. Double-click the app to add it to the **Application permission list**. (Double-click 📁.. to return to the previous directory.)


GIGABYTE™
EZ Setup
Disk Mode Switch
EZ Smart Response
EZ Rapid Start
EZ Smart Connect
XHD
Smart Connect

File Name	Application permission list
..	
desktop.ini	
Desktop.lnk	
Immersive Control Panel.lnk	
Windows Store.lnk	
Accessories	
Administrative Tools	
Gigabyte	
Google Chrome	
Google Drive	

(Note) This feature works best with programs designed to work automatically with the Internet to obtain their data such as Outlook®, Windows Live™ Mail, and Seesmic®.

XHD

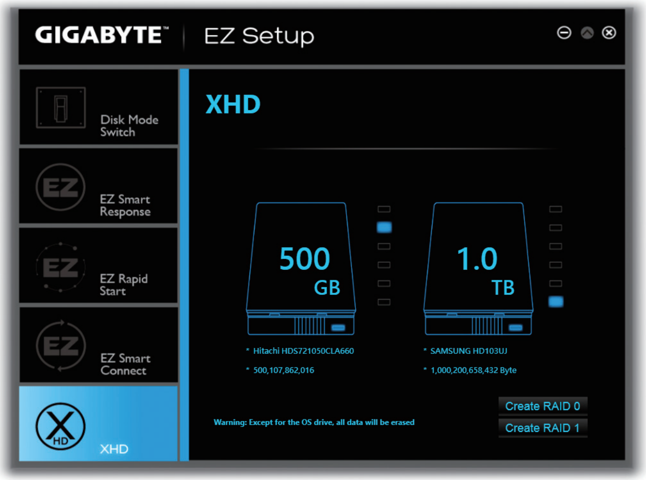
With GIGABYTE XHD (Note 1), users can quickly configure a RAID-ready system for RAID 0 or RAID 1 when a new SATA drive is added. All with a simple click of a button, XHD helps to enhance your hard drive read/write performance without the need for complex and time-consuming configurations.

A. System Requirements

1. An Intel® Chipset motherboard supporting RAID
2. Intel® SATA controllers set to RAID mode
3. Intel® Rapid Storage Technology utility installed
4. Windows 7 with SP1/Windows 8/Windows 8.1
5. Intel® SATA controller driver installed

B. Using XHD

Select **XHD** and click **Create RAID 0** or **Create RAID 1** based on your need (Note 2).


GIGABYTE
EZ Setup
Disk Mode Switch
EZ Smart Response
EZ Rapid Start
EZ Smart Connect
XHD
XHD
500 GB
1.0 TB
Create RAID 0
Create RAID 1

* Hitachi HDS721050CLA660

* 500,107,862,016

* SAMSUNG HD103UJ

* 1,000,200,658,432 Byte

Warning: Except for the OS drive, all data will be erased

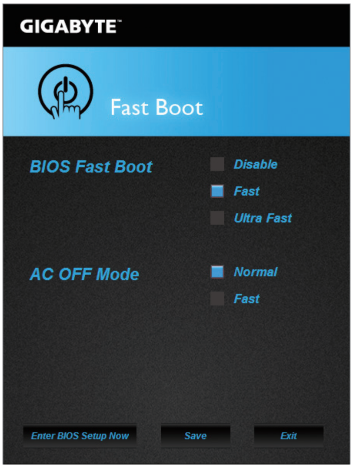
(Note 1) The XHD utility only supports the SATA connectors controlled by the Intel® Chipset.

(Note 2) Except for the operating system drive, all data on other hard drive will be deleted. Back up your data before using the XHD utility.

5-2-4 Fast Boot

Through the simple GIGABYTE Fast Boot (Note 1) interface, you can enable or change the Fast Boot or Next Boot After AC Power Loss setting right in the operating system.

The Fast Boot Interface



BIOS Fast Boot
- ☐ Disable
- ☑ Fast
- ☐ Ultra Fast

AC OFF Mode
- ☑ Normal
- ☐ Fast

Using Fast Boot

- **BIOS Fast Boot:**
  This option is the same as the **Fast Boot** option (Note 2) in BIOS Setup. It allows you to enable or disable the fast boot function to shorten OS boot time.
- **AC OFF Mode:**
  This option is the same as the **Next Boot After AC Power Loss** option (Note 2) in BIOS Setup. It allows you to select the system bootup mode upon the return of an AC power loss. (This mode is configurable only when **BIOS Fast Boot** is set to **Fast** or **Ultra Fast**.)

After you configure the setting, click **Save** to save and click **Exit**. The settings will take effect on next boot. If you click the **Enter BIOS Setup Now** button, the system will restart and enter BIOS Setup immediately.

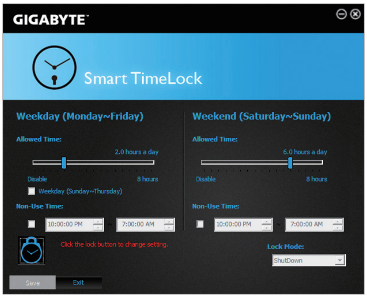
(Note 1) This function is supported by Windows 8.1/8 only.

(Note 2) For more details about this function, refer to Chapter 2, "BIOS Features."

5-2-5 Smart TimeLock

GIGABYTE Smart TimeLock allows you to effectively manage computer or Internet usage time with simple rules and options.

The Smart TimeLock Interface



Weekday (Monday~Friday)

Allowed Time:
2.0 hours a day
Disable
8 hours
☐ Weekday (Sunday~Thursday)

Non-Use Time:
☐ 10:00:00 PM ~ 7:00:00 AM

Click the lock button to change setting.

Weekend (Saturday~Sunday)

Allowed Time:
6.0 hours a day
Disable
8 hours

Non-Use Time:
☐ 10:00:00 PM ~ 7:00:00 AM

Lock Mode:
ShutDown

Using Smart TimeLock

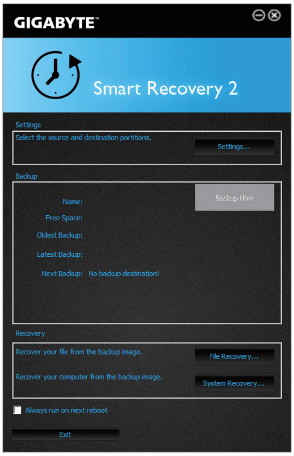
Click the lock icon on the bottom left corner and enter the password (Note). Set the time when a user can or cannot use your computer for weekdays and weekends. The **Lock Mode** on the bottom right corner allows you to choose to turn off the computer or only close the Internet connection during the specified time period. Click **Save** to save the settings and click **Exit** to exit.

An alert will appear 15 minutes and 1 minute prior to the default shutdown time. When the alert appears, you can enter the password to extend the usage time or click **Cancel** to close the alert. If you respond **Cancel**, you will be requested to enter the password to extend the usage time again when the default shutdown time arrives, or the computer will shutdown right away.

(Note) You can set the User Password in the system BIOS Setup program to prevent the system time being changed by other users.

5-2-6 Smart Recovery 2

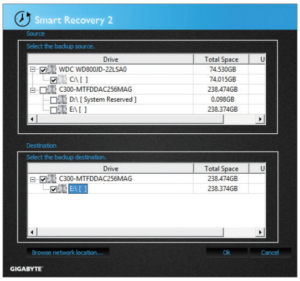
Smart Recovery 2 allows you to back up a partition as an image file every hour. You can use these images to restore your system or files when needed.


GIGABYTE
Smart Recovery 2
Settings
Select the source and destination partitions.
Settings...
Backup
Backup Now
Name:
Free Space:
Oldest Backup:
Latest Backup:
Next Backup: No backup destination!
Recovery
Recover your file from the backup image.
File Recovery...
Recover your computer from the backup image.
System Recovery...
☐ Always run on next reboot
Exit

The Smart Recovery 2 main menu:

Button	Description
Settings	Allows you to select the source and destination partition
Backup Now	Allows you to perform the backup immediately
File Recovery...	Allows you to recover your files from the backup image
System Recovery...	Allows you to recover your system from the backup image

- Smart Recovery 2 only supports NTFS file system.
- You need to select the destination partition in **Settings** the first time you use Smart Recovery 2.
- The Backup Now button will be available only after you log in Windows for ten minutes.
- Select the **Always run on next reboot** checkbox to automatically enable Smart Recovery2 after system reboot.

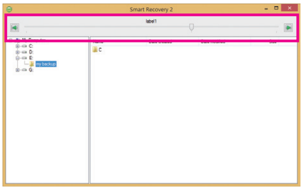

Smart Recovery 2
Source
Select the backup source.
Drive
Total Space
WDC WD800JD-22LSA0
74.530GB
C:\ [ ]
74.015GB
C300-MTFDDAC256MAG
238.474GB
D:\ [System Reserved]
0.098GB
E:\ [ ]
238.374GB
Destination
Select the backup destination.
Drive
Total Space
C300-MTFDDAC256MAG
238.474GB
E:\ [ ]
238.374GB
Browse network location...
Ok
Cancel
GIGABYTE

Creating a backup:

Click the **Settings** button on the main menu. In the **Settings** dialog box, select the source partition and destination partition and click **OK**. The initial backup will start after 10 minutes and regular backup will be performed hourly. Note: By default, all partitions on the system drive are selected as the backup source. The backup destination cannot be on the same partition as the backup source.

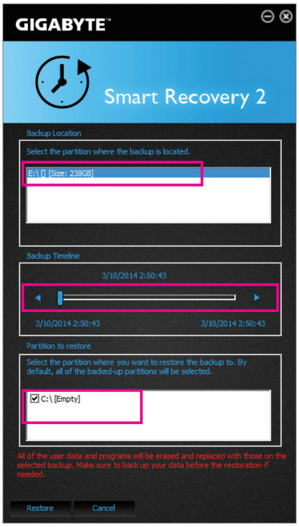
Saving the backup to a network location:

If you want to save the backup to a network location, select **Browse network location**. Make sure your computer and the computer where you want to save the backup are in the same domain. Choose the network location where you want to store the backup and enter the user name and password. Follow the on-screen instructions to complete.


Smart Recovery 2
label1

Recovering a file:

Click the **File Recovery** button on the main menu. Use the time slider on the top of the popped out window to select a previous backup time. The right pane will display the backed-up partitions in the backup destination (in the **My Backup** folder). Browse to the file you want and copy it.



Select the partition where the backup is located.

E:\ [] [Size: 238GB]

3/10/2014 2:50:43

3/10/2014 2:50:43 3/10/2014 2:50:43

Select the partition where you want to restore the backup to. By default, all of the backed-up partitions will be selected.

☑ C:\ [Empty]

All of the user data and programs will be erased and replaced with those on the selected backup. Make sure to back up your data before the restoration if needed.

Recovering your system with Smart Recovery 2:

Steps:

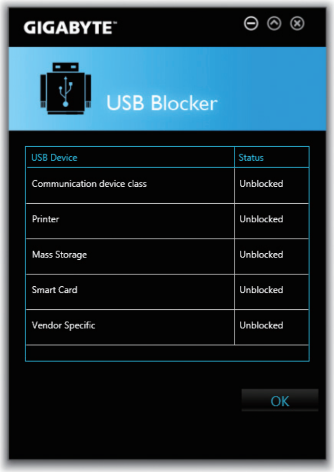
1. Click the **System Recovery** button on the main menu.
2. Select the location where your backup is saved.
3. Use the time slider to select a time point.
4. Select a partition backup created on the selected time point and click **Restore**.
5. Confirm whether to restart your system to proceed with the restore immediately or later. Once you respond "Yes" the system will restart to the Windows recovery environment. Follow the onscreen instructions to restore your system.

All of your files and programs will be deleted and replaced with those on the selected backup. If needed, be sure to make a copy of your data before the restore.

5-2-7 USB Blocker

GIGABYTE USB Blocker provides you with an easy-to-use interface that allows you to block certain USB device types on your PC. Devices classes that are blocked will be ignored by the operating system.

The USB Blocker Interface



USB Device	Status
Communication device class	Unblocked
Printer	Unblocked
Mass Storage	Unblocked
Smart Card	Unblocked
Vendor Specific	Unblocked

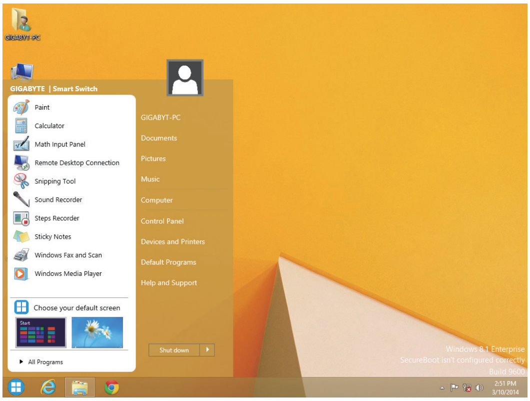
Using USB Blocker

Select the class of USB device that you would like to block or unblocked. Double left-click to change the **Blocked** or **Unblocked** status and click **OK**. Then enter your password and click **OK** to complete.

5-2-8 Smart Switch

GIGABYTE Smart Switch provides you with the conventional Windows start menu, allowing you to easily access to the apps that you frequently use. You can also select the default screen displayed after you enter Windows.

The Smart Switch Interface


GIGABYT-PC
GIGABYTE | Smart Switch
Paint
Calculator
Math Input Panel
Remote Desktop Connection
Snipping Tool
Sound Recorder
Steps Recorder
Sticky Notes
Windows Fax and Scan
Windows Media Player
Choose your default screen
Start
All Programs
GIGABYT-PC
Documents
Pictures
Music
Computer
Control Panel
Devices and Printers
Default Programs
Help and Support
Shut down
Windows 8.1 Enterprise
SecureBoot isn't configured correctly
Build 9600
2:51 PM
3/10/2014

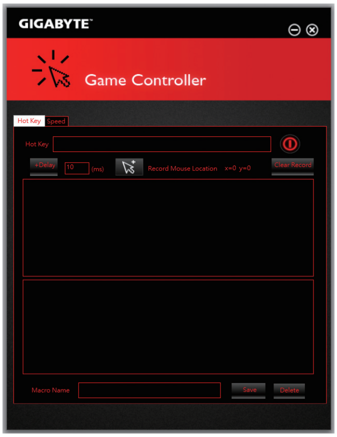
Using Smart Switch

The Smart Switch icon ⊞ will appear on the bottom left corner of the traditional Windows desktop screen after Smart Switch is installed. Left-click the icon to see the screen as that shown above and you can set the default screen displayed after you enter Windows.

5-2-9 Game Controller

GIGABYTE Game Controller allows you to define your own hotkeys and change the mouse sensitivity, helping you make the most out of your keyboard and mouse in games.

The Game Controller Interface


GIGABYTE
Game Controller
Hot Key
Speed
Hot Key
+Delay
10
(ms)
Record Mouse Location
x=0 y=0
Clear Record
Macro Name
Save
Delete

Using Game Controller:

- **Hot Key:**
  Create macro commands and define your own hotkeys to quickly perform the function your want.
- **Speed:**
  Using the Sniper key you can switch the mouse sensitivity when you are in sniper mode for better sniper accuracy.

(Note) It is recommended that Game Controller be closed if it violates the end user license agreement of your game.

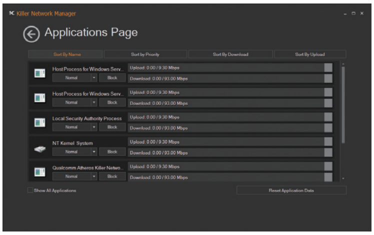
Chapter 6 Appendix

6-1 Qualcomm® Atheros Killer Network Manager

The Killer Network Manager allows you to view your network connection status and Internet bandwidth and to configure your network settings. After installing the LAN driver, you can access the Qualcomm® Atheros Killer Network Manager in Apps>Qualcomm Atheros>Killer Network Manager or click on the K icon in the notification area.

Applications Page

On the **Applications Page** configuration screen, you can set the priority for an application or online game to use the bandwidth to access the Internet. To change the priority, use the drop-down menu below the application's/game's icon to select a priority level. You can change the upload and download bandwidth for each application as well. Drag the gray square on the right end of an application to change the bandwidth.


Killer Network Manager
Applications Page
Sort By Name
Sort by Priority
Sort By Download
Sort By Upload
Normal
Block
Show All Applications
Reset Application Data

Host Process for Windows Serv... Upload: 0.00 / 9.30 Mbps Download: 0.00 / 93.00 Mbps

Host Process for Windows Serv... Upload: 0.00 / 9.30 Mbps Download: 0.00 / 93.00 Mbps

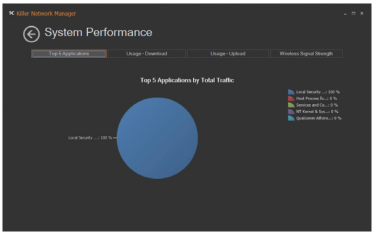
Local Security Authority Process Upload: 0.00 / 9.30 Mbps Download: 0.00 / 93.00 Mbps

NT Kernel System Upload: 0.00 / 9.30 Mbps Download: 0.00 / 93.00 Mbps

Qualcomm Atheros Killer Netwo... Upload: 0.00 / 9.30 Mbps Download: 0.00 / 93.00 Mbps

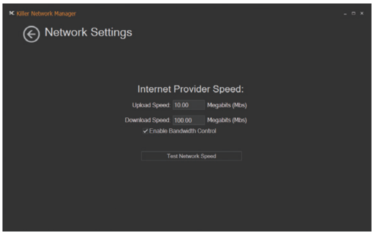
System Performance

This page allows you to view application traffic of your system.


Killer Network Manager
System Performance
Top 5 Applications
Usage - Download
Usage - Upload
Wireless Signal Strength
Top 5 Applications by Total Traffic
Local Security ...: 100 %
Local Security ...: 100 %
Host Process fo...: 0 %
Services and Co...: 0 %
NT Kernel & Sys...: 0 %
Qualcomm Athero...: 0 %

Network Settings

This page allows you to configure your wired network connection and Internet provider speed.


Killer Network Manager
Network Settings
Test Network Speed

Internet Provider Speed:

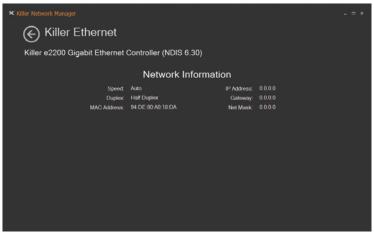
Upload Speed: 10.00 Megabits (Mbs)

Download Speed: 100.00 Megabits (Mbs)

☑ Enable Bandwidth Control

Killer Ethernet

This page allows you to check the current status of your network connection.


Killer Network Manager
Killer Ethernet

Killer e2200 Gigabit Ethernet Controller (NDIS 6.30)

Network Information

Speed: Auto

Duplex: Half Duplex

MAC Address: 94:DE:80:A0:18:DA

IP Address: 0.0.0.0

Gateway: 0.0.0.0

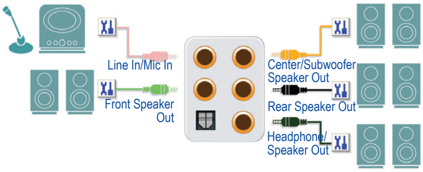
Net Mask: 0.0.0.0

6-2 Configuring Audio Input and Output

6-2-1 Configuring 2/5.1-Channel Audio

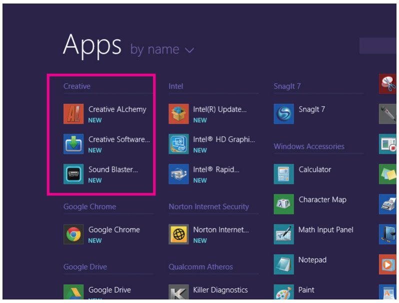
The motherboard supports 2/5.1-channel audio. Refer to the following for speaker configurations.

- 2-channel audio: Headphone or Line out.
- 5.1-channel audio: Front speaker out, Rear speaker out, and Center/Subwoofer speaker out.


Line In/Mic In
Front Speaker Out
Center/Subwoofer Speaker Out
Rear Speaker Out
Headphone/ Speaker Out

6-2-2 Creative Software Suite

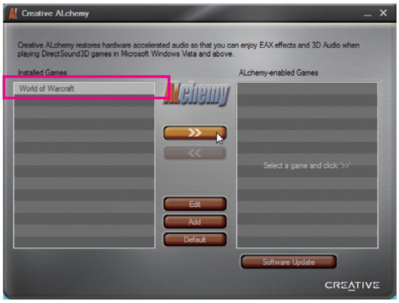
After installing the audio driver, you can find the Creative Software Suite in Apps>Creative.
The Creative Software Suite includes Creative Alchemy and Sound Blaster Recon3Di.


Apps by name
Creative
Creative ALchemy NEW
Creative Software... NEW
Sound Blaster... NEW
Google Chrome
Google Chrome NEW
Google Drive
Google Drive
Intel
Intel(R) Update... NEW
Intel® HD Graphi... NEW
Intel® Rapid... NEW
Norton Internet Security
Norton Internet... NEW
Qualcomm Atheros
Killer Diagnostics
SnagIt 7
SnagIt 7
Windows Accessories
Calculator
Character Map
Math Input Panel
Notepad
Paint

Creative Alchemy

Through the Creative Alchemy, you can enable EAX effects for your games to obtain the most realistic gaming experience.

Steps:
Go to Apps>Creative to launch Creative Alchemy. On the left panel, select the game for which you want to enable the EAX effects and add it to the right panel. You will see the EAX effects are enabled when the game is launched.

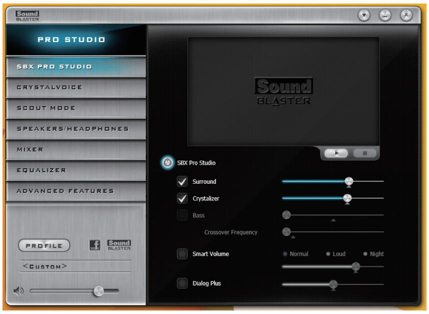

Creative ALchemy restores hardware accelerated audio so that you can enjoy EAX effects and 3D Audio when playing DirectSound3D games in Microsoft Windows Vista and above.

Creative ALchemy
Installed Games
World of Warcraft
ALchemy
ALchemy-enabled Games
Select a game and click '>>'
Edit
Add
Default
Software Update
CREATIVE

Sound Blaster Recon3Di

To launch the Sound Blaster Recon3Di Control Panel, go to Apps>Creative and select **Sound Blaster Recon3Di Control Panel** or click the SB icon in the notification area.

SBX PRO STUDIO:

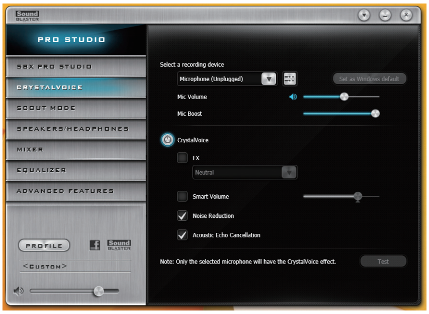

Sound BLASTER
PRO STUDIO
SBX PRO STUDIO
CRYSTALVOICE
SCOUT MODE
SPEAKERS/HEADPHONES
MIXER
EQUALIZER
ADVANCED FEATURES
PROFILE
<CUSTOM>
Sound BLASTER

SBX Pro Studio
☑ Surround
☑ Crystalizer
☐ Bass
Crossover Frequency
☐ Smart Volume ● Normal ● Loud ● Night
☐ Dialog Plus

Click the SBX PRO STUDIO icon to enable or disable it. The sliders on the right side allow you to adjust the enhancement level for each feature.

- Surround:
  Provides immersion control to enhance the natural sense of audio depth and spaciousness by creating virtual surround sound channels.
- Crystalizer:
  Makes the music sound as good as the artist originally intended and adds an enhanced level of realism for movies and games.
- Bass:
  This feature is available only when a stereo speaker or headphone is installed. It fills in the missing low frequency tones and gives the extra impact for a better entertainment experience. The Crossover Frequency feature is available only when a 2-channel stereo speaker system is installed.
- Smart Volume:
  Addresses the problem of abrupt volume level changes during playback and between songs by automatically and continuously measuring volume, and intelligently applying gain and attenuation to compensate for those changes.
- Dialog Plus:
  Enhances the voices in movies for clearer dialog, allowing the listener to hear the dialog over the rest of the soundtrack and over ambient noise in the listening environment.

CRYSTALVOICE:


Sound BLASTER
PRO STUDIO
SBX PRO STUDIO
CRYSTALVOICE
SCOUT MODE
SPEAKERS/HEADPHONES
MIXER
EQUALIZER
ADVANCED FEATURES
PROFILE
<CUSTOM>
Sound BLASTER
Set as Windows default
Test

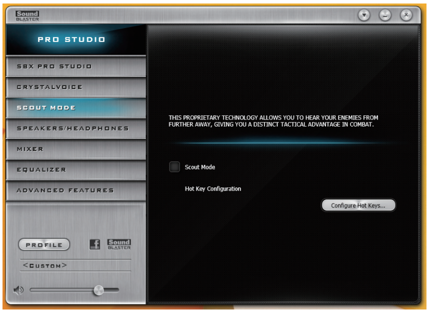
Select a recording device
Microphone (Unplugged)
Mic Volume
Mic Boost
CrystalVoice
☐ FX
Neutral
☐ Smart Volume
☑ Noise Reduction
☑ Acoustic Echo Cancellation
Note: Only the selected microphone will have the CrystalVoice effect.

This page allows you to select a recording device and adjust microphone volume/boost and related settings. It also allows you to configure CrystalVoice features.

- FX:
  Morphs your voice into different characters and accents.
- Smart Volume:
  Automatically adjusts the loudness of the speaker's voice to maintain a consistent volume level.
- Noise Reduction:
  Eliminates unwanted background noise in your conversations.
- Acoustic Echo Cancellation:
  Eliminates echoes that interfere with your conversation.

SCOUT MODE:

This page allows you to enable or disable Scout Mode. This feature enables you to hear your opponents from further away in FPS games, giving you a distinct tactical advantage in combat. You can set hot keys which can be used enable or disable this feature during games.


Sound BLASTER
PRO STUDIO
SBX PRO STUDIO
CRYSTALVOICE
SCOUT MODE
SPEAKERS/HEADPHONES
MIXER
EQUALIZER
ADVANCED FEATURES
PROFILE
<CUSTOM>
Configure Hot Keys...

THIS PROPRIETARY TECHNOLOGY ALLOWS YOU TO HEAR YOUR ENEMIES FROM FURTHER AWAY, GIVING YOU A DISTINCT TACTICAL ADVANTAGE IN COMBAT.

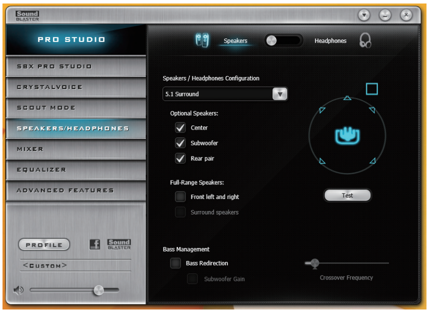
☐ Scout Mode

Hot Key Configuration

SPEAKERS/HEADPHONES:

This page allows you to set the output device to speakers or headphones and set up your speaker/ headphone configurations. (Note: Speakers and headphones cannot be used at the same time. When the headphone function is selected, the sound will come out only from the front line out or rear headphone jack.)

Speaker/Headphone Configurations:
Depending on the connected devices, you can select **5.1 Surround**, **Stereo**, or **Headphones**. If a 5.1-channel configuration is set, you can cancel or open a specific speaker manually.


Sound BLASTER
PRO STUDIO
SBX PRO STUDIO
CRYSTALVOICE
SCOUT MODE
SPEAKERS/HEADPHONES
MIXER
EQUALIZER
ADVANCED FEATURES
PROFILE
<CUSTOM>
Speakers
Headphones
Test
Crossover Frequency

Speakers / Headphones Configuration: 5.1 Surround

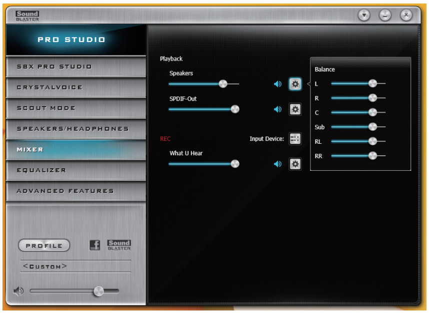
Optional Speakers:
☑ Center
☑ Subwoofer
☑ Rear pair

Full-Range Speakers:
☐ Front left and right
☐ Surround speakers

Bass Management
☐ Bass Redirection
☐ Subwoofer Gain

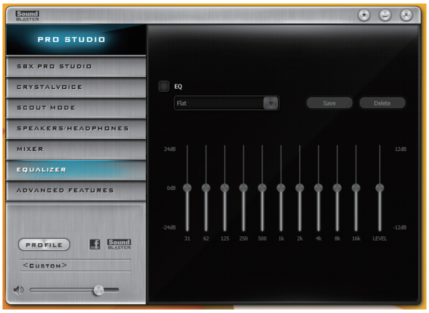
MIXER:

This page allows you to increase or decrease the playback and recording volumes for your input/output device.


Sound BLASTER
PRO STUDIO
SBX PRO STUDIO
CRYSTALVOICE
SCOUT MODE
SPEAKERS/HEADPHONES
MIXER
EQUALIZER
ADVANCED FEATURES
PROFILE
<CUSTOM>
Playback
Speakers
SPDIF-Out
REC
Input Device:
What U Hear
Balance
L
R
C
Sub
RL
RR

EQUALIZER:

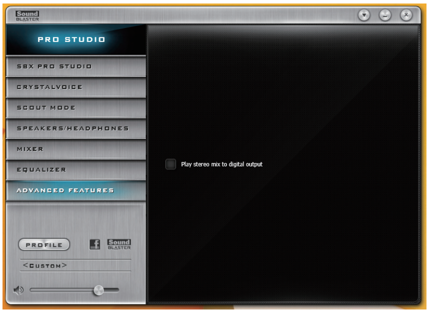
This panel allows you to adjust the strength of certain frequencies for your audio signals.


Sound BLASTER
PRO STUDIO
SBX PRO STUDIO
CRYSTALVOICE
SCOUT MODE
SPEAKERS/HEADPHONES
MIXER
EQUALIZER
ADVANCED FEATURES
PROFILE
<CUSTOM>
EQ
Flat
Save
Delete
24dB
0dB
-24dB
12dB
-12dB
31
62
125
250
500
1k
2k
4k
8k
16k
LEVEL

ADVANCED FEATURES:

This page allows you to play stereo mix to digital output. You can output the mixed audio signals simultaneously to the speakers and S/PDIF out to obtain 2-channel sound.

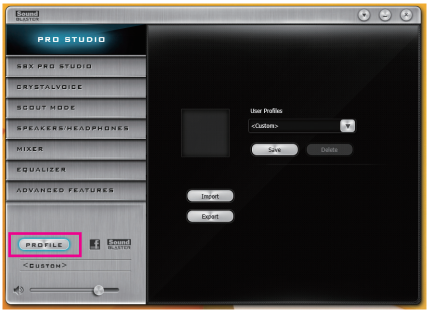
(Note: When using this feature, the default playback device must be set to **Speaker**, not **SPDIF Out** in Windows Control Panel.


Sound BLASTER
PRO STUDIO
SBX PRO STUDIO
CRYSTALVOICE
SCOUT MODE
SPEAKERS/HEADPHONES
MIXER
EQUALIZER
ADVANCED FEATURES
PROFILE
<CUSTOM>

☐ Play stereo mix to digital output

Other Features:

The **Profile** button allows you to save your settings on the **SPEAKERS/HEADPHONES**, **MIXER**, or **ADVANCED FEATURES** page to a profile. You can export your custom settings and share them with others or import others' custom settings.


Sound BLASTER
PRO STUDIO
SBX PRO STUDIO
CRYSTALVOICE
SCOUT MODE
SPEAKERS/HEADPHONES
MIXER
EQUALIZER
ADVANCED FEATURES
PROFILE
<CUSTOM>
User Profiles
<Custom>
Save
Delete
Import
Export

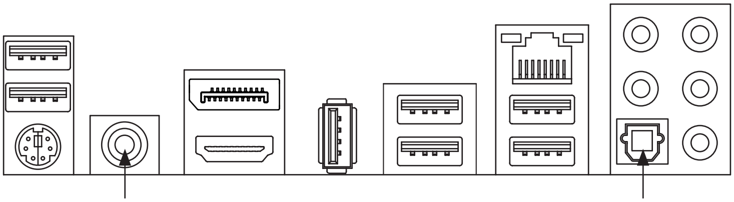
(Note) For more information on Sound Blaster Recon3Di, please visit the CREATIVE® website.

6-2-3 Configuring S/PDIF Out

The S/PDIF Out jack can transmit audio signals to an external decoder for decoding to get the best audio quality.

1. Connecting a S/PDIF Out Cable:

Connect a S/PDIF coaxial cable or a S/PDIF optical cable (either one) to the corresponding S/PDIF out connector as shown below and an external decoder for transmitting the S/PDIF digital audio signals.



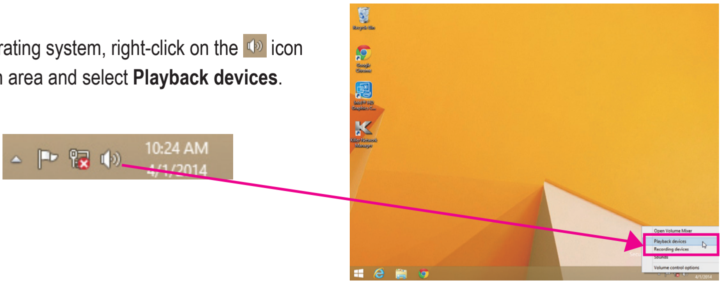
Connects to a S/PDIF coaxial cable

Connects to a S/PDIF optical cable

2. Configuring S/PDIF Out:

Step 1:

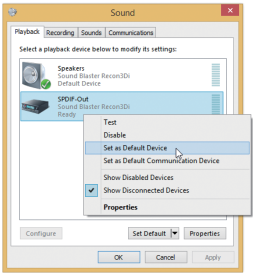
While in the operating system, right-click on the 🔊 icon in the notification area and select **Playback devices**.



10:24 AM
4/1/2014
Open Volume Mixer
Playback devices
Recording devices
Sounds
Volume control options
4/1/2014

Step 2:

On the **Playback** tab, right-click on **SPDIF Out**, select **Set as Default Device**, and then open the **Properties** dialog box.



Sound
Playback
Recording
Sounds
Communications

Select a playback device below to modify its settings:

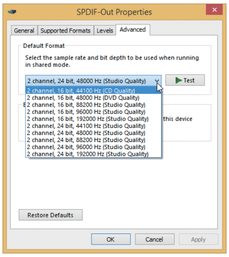
Speakers
Sound Blaster Recon3Di
Default Device

SPDIF-Out
Sound Blaster Recon3Di
Ready

Test
Disable
Set as Default Device
Set as Default Communication Device
Show Disabled Devices
Show Disconnected Devices
Properties
Configure
Set Default
Properties
OK
Cancel
Apply

Step 3:

You can go to the **Supported Formats** tab to select the formats to be decoded or the **Advanced** tab to select the sample rate and bit depth.



SPDIF-Out Properties
General
Supported Formats
Levels
Advanced
Default Format

Select the sample rate and bit depth to be used when running in shared mode.

2 channel, 24 bit, 48000 Hz (Studio Quality)

2 channel, 16 bit, 44100 Hz (CD Quality)
2 channel, 16 bit, 48000 Hz (DVD Quality)
2 channel, 16 bit, 88200 Hz (Studio Quality)
2 channel, 16 bit, 96000 Hz (Studio Quality)
2 channel, 16 bit, 192000 Hz (Studio Quality)
2 channel, 24 bit, 44100 Hz (Studio Quality)
2 channel, 24 bit, 48000 Hz (Studio Quality)
2 channel, 24 bit, 88200 Hz (Studio Quality)
2 channel, 24 bit, 96000 Hz (Studio Quality)
2 channel, 24 bit, 192000 Hz (Studio Quality)
Test
this device
Restore Defaults
OK
Cancel
Apply

6-2-4 Configuring Audio Recording

You can record the sound from the microphone or Line in device or record the sound from your computer.

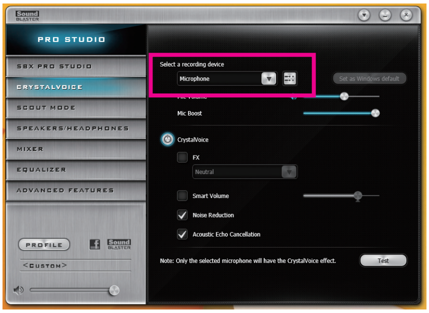
1. Configuring your microphone:

Step 1:

Connect your microphone to the Mic in jack on the back panel or the Mic in jack on the front panel.

Note: The microphone functions on the front panel and back panel cannot be used at the same time.

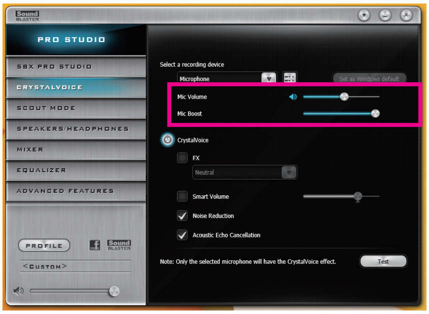
Open the **Sound Blaster Recon3Di** control panel and go to the **CRYSTALVOICE** page. Make sure your microphone is correctly connected.


Sound BLASTER
PRO STUDIO
SBX PRO STUDIO
CRYSTALVOICE
SCOUT MODE
SPEAKERS/HEADPHONES
MIXER
EQUALIZER
ADVANCED FEATURES
PROFILE
<CUSTOM>
Select a recording device
Microphone
Set as Windows default
Mic Boost
CrystalVoice
FX
Neutral
Smart Volume
Noise Reduction
Acoustic Echo Cancellation
Test

Note: Only the selected microphone will have the CrystalVoice effect.

Step 2:

To hear the sound being recorded during the recording process, it is recommended that you set the **Mic volume** at a middle level. Do not mute the recording volume, or you'll not be able to record the sound. To raise the recording and playback volume for the microphone, use the **Mic Boost** slider and set the microphone boost level.

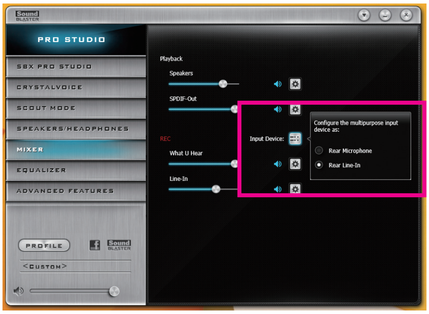

Sound BLASTER
PRO STUDIO
SBX PRO STUDIO
CRYSTALVOICE
SCOUT MODE
SPEAKERS/HEADPHONES
MIXER
EQUALIZER
ADVANCED FEATURES
PROFILE
<CUSTOM>
Select a recording device
Microphone
Set as Windows default
Mic Volume
Mic Boost
CrystalVoice
FX
Neutral
Smart Volume
Noise Reduction
Acoustic Echo Cancellation
Test

Note: Only the selected microphone will have the CrystalVoice effect.

2. Configuring your Line in device:

Step 1:

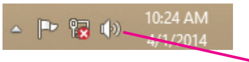
Open the **Sound Blaster Recon3Di** control panel and go to the **Mixer** page. In the **REC** section, click the **Input Device** icon and select **Rear Line In**. Later you can use the **Line-In** slider to set the volume.

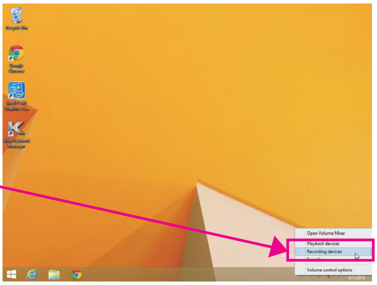

Sound BLASTER
PRO STUDIO
SBX PRO STUDIO
CRYSTALVOICE
SCOUT MODE
SPEAKERS/HEADPHONES
MIXER
EQUALIZER
ADVANCED FEATURES
PROFILE
<CUSTOM>
Playback
Speakers
SPDIF-Out
REC
What U Hear
Line-In
Input Device:

Configure the multipurpose input device as:
○ Rear Microphone
● Rear Line-In

Step 2:

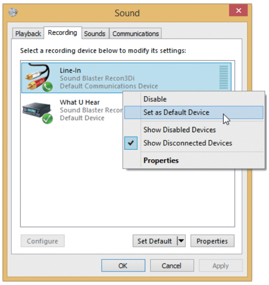
Right-click on the 🔊 icon in the notification area and select **Recording devices**.


10:24 AM
4/1/2014


Open Volume Mixer
Playback devices
Recording devices
Volume control options
4/1/2014

Step 3:

On the **Recording** tab, right-click on **Line-In**, and select **Set as Default Device**.


Sound
Playback
Recording
Sounds
Communications

Select a recording device below to modify its settings:

Line-In
Sound Blaster Recon3Di
Default Communications Device

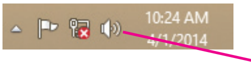
What U Hear
Sound Blaster Recor
Default Device

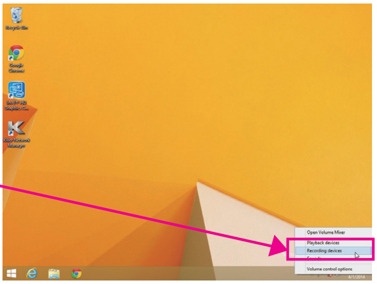
Disable
Set as Default Device
Show Disabled Devices
Show Disconnected Devices
Properties
Configure
Set Default
Properties
OK
Cancel
Apply

3. Recording the sound from your computer:

Step 1:

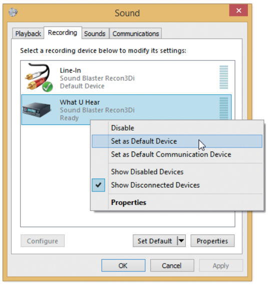
While in the operating system, right-click on the 🔊 icon in the notification area and select **Recording devices**.


10:24 AM
4/1/2014


Open Volume Mixer
Playback devices
Recording devices
Volume control options
4/1/2014

Step 2:

On the **Recording** tab, right-click on **What U Hear** and select **Set as Default Device**.


Sound
Playback
Recording
Sounds
Communications

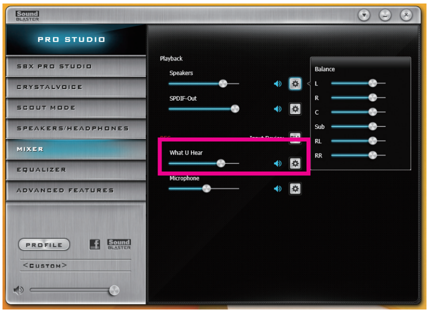
Select a recording device below to modify its settings:

Line-In
Sound Blaster Recon3Di
Default Device

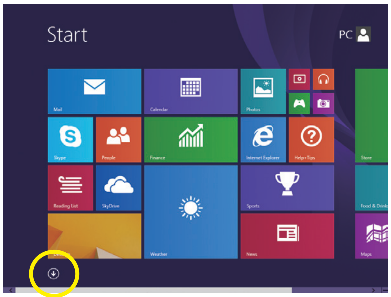
What U Hear
Sound Blaster Recon3Di
Ready

Disable
Set as Default Device
Set as Default Communication Device
Show Disabled Devices
Show Disconnected Devices
Properties
Configure
Set Default
Properties
OK
Cancel
Apply

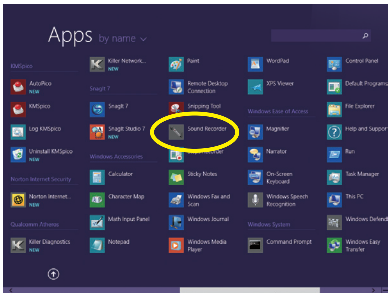
Step 3:
Open the Sound Blaster Recon3Di Control Panel and go to the **Mixer** page. In the **REC** section, you can use the **What U Hear** slider to set the volume.


PRO STUDIO
SBX PRO STUDIO
CRYSTALVOICE
SCOUT MODE
SPEAKERS/HEADPHONES
MIXER
EQUALIZER
ADVANCED FEATURES
PROFILE
<CUSTOM>
Playback
Speakers
SPDIF-Out
What U Hear
Microphone
Balance
L
R
C
Sub
RL
RR

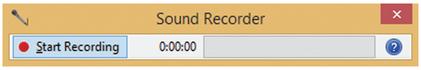
Step 4:
To open the **Sounder Recorder,** move the mouse cursor to the bottom left corner of the screen, click the **Start** ⊞ icon to switch to the **Start** screen (or press the Windows button on the keyboard). Click the ⊕ icon on the bottom left corner of the screen to access the **Apps** screen.


Start
PC
Mail
Calendar
Photos
Skype
People
Finance
Internet Explorer
Help+Tips
Store
Reading List
SkyDrive
Sports
Food & Drink
Weather
News
Maps

Step 5:
On this screen, click **Sound Recorder** for audio recording.


Apps by name
KMSpico
AutoPico
KMSpico
Log KMSpico
Uninstall KMSpico
Norton Internet Security
Norton Internet...
Qualcomm Atheros
Killer Diagnostics
Killer Network...
Snagit 7
Snagit 7
Snagit Studio 7
Windows Accessories
Calculator
Character Map
Math Input Panel
Notepad
Paint
Remote Desktop Connection
Snipping Tool
Sound Recorder
Sticky Notes
Windows Fax and Scan
Windows Journal
Windows Media Player
WordPad
XPS Viewer
Windows Ease of Access
Magnifier
Narrator
On-Screen Keyboard
Windows Speech Recognition
Windows System
Command Prompt
Control Panel
Default Programs
File Explorer
Help and Support
Run
Task Manager
This PC
Windows Defender
Windows Easy Transfer

6-2-5 Using the Sound Recorder


Sound Recorder
Start Recording
0:00:00

A. Recording Sound

1. Make sure you have connected the sound input device (e.g. microphone) to the computer.
2. To record the audio, click the **Start Recording** button ● Start Recording.
3. To stop recording audio, click the **Stop Recording** button ■ Stop Recording.

Be sure to save the recorded audio file upon completion.

B. Playing the Recorded Sound

You can play your recording in a digital media player program that supports your audio file format.

6-3 Troubleshooting

6-3-1 Frequently Asked Questions

To read more FAQs for your motherboard, please go to the **Support & Downloads\FAQ** page on GIGABYTE's website.

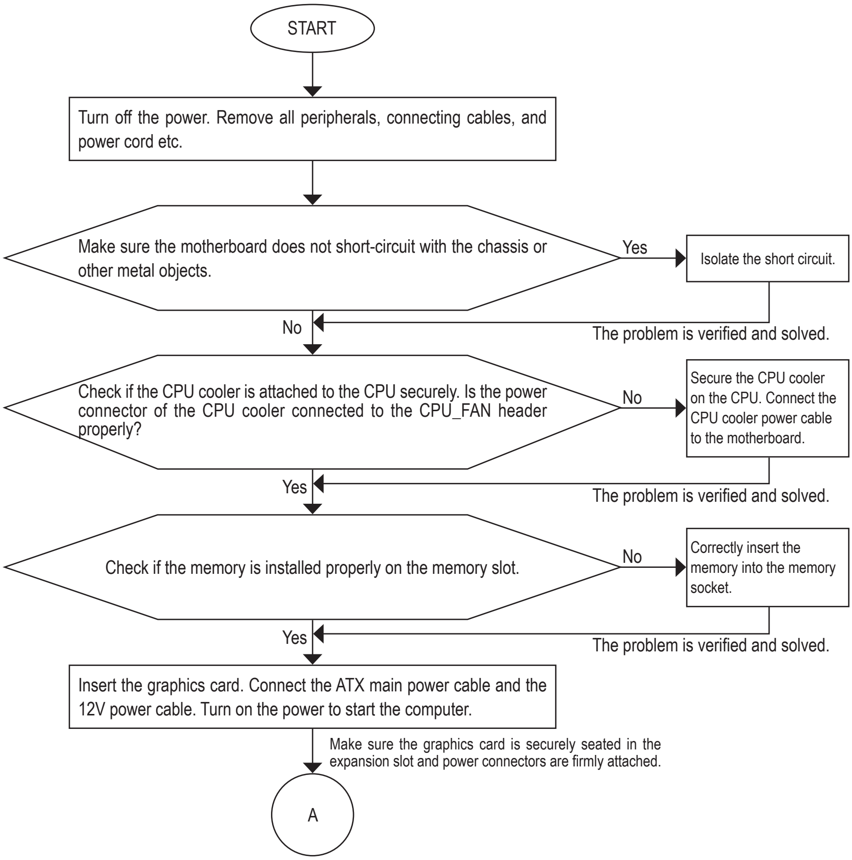
Q: Why is the light of my keyboard/optical mouse still on after the computer shuts down?
A: Some motherboards provide a small amount of standby power after the computer shuts down and that's why the light is still on.

Q: How do I clear the CMOS values?
A: For motherboards that have a Clear CMOS button, press this button to clear the CMOS values (before doing this, please turn off the computer and unplug the power cord). For motherboards that have a Clear CMOS jumper, refer to the instructions in Chapter 1 to short the jumper to clear the CMOS values. If your board doesn't have this jumper/button, refer to the instructions on the motherboard battery in Chapter 1. You can temporarily remove the battery from the battery holder to stop supplying power to the CMOS, which will clear the CMOS values after about one minute.

Q: Why do I still get a weak sound even though I have turned my speaker to the maximum volume?
A: Make sure your speaker is equipped with an internal amplifier. If not, try a speaker with power/amplifier.

6-3-2 Troubleshooting Procedure

If you encounter any troubles during system startup, follow the troubleshooting procedure below to solve the problem.



Turn off the power. Remove all peripherals, connecting cables, and power cord etc.

Make sure the motherboard does not short-circuit with the chassis or other metal objects.

Isolate the short circuit.

The problem is verified and solved.

Check if the CPU cooler is attached to the CPU securely. Is the power connector of the CPU cooler connected to the CPU_FAN header properly?

Secure the CPU cooler on the CPU. Connect the CPU cooler power cable to the motherboard.

The problem is verified and solved.

Check if the memory is installed properly on the memory slot.

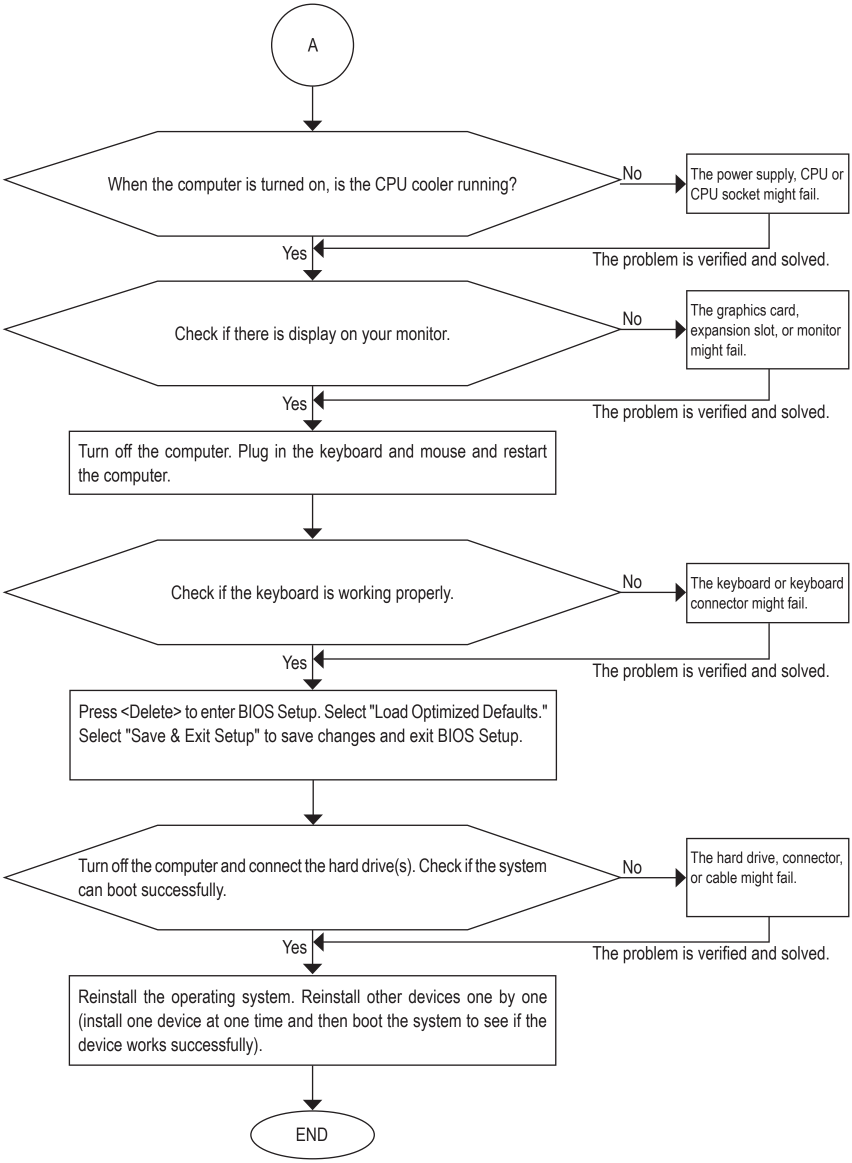
Correctly insert the memory into the memory socket.

The problem is verified and solved.

Insert the graphics card. Connect the ATX main power cable and the 12V power cable. Turn on the power to start the computer.

Make sure the graphics card is securely seated in the expansion slot and power connectors are firmly attached.

(Continued...)


A
When the computer is turned on, is the CPU cooler running?
No
The power supply, CPU or CPU socket might fail.
Yes
The problem is verified and solved.
Check if there is display on your monitor.
No
The graphics card, expansion slot, or monitor might fail.
Yes
The problem is verified and solved.
Turn off the computer. Plug in the keyboard and mouse and restart the computer.
Check if the keyboard is working properly.
No
The keyboard or keyboard connector might fail.
Yes
The problem is verified and solved.
Press <Delete> to enter BIOS Setup. Select "Load Optimized Defaults." Select "Save & Exit Setup" to save changes and exit BIOS Setup.
Turn off the computer and connect the hard drive(s). Check if the system can boot successfully.
No
The hard drive, connector, or cable might fail.
Yes
The problem is verified and solved.
Reinstall the operating system. Reinstall other devices one by one (install one device at one time and then boot the system to see if the device works successfully).
END

If the procedure above is unable to solve your problem, contact the place of purchase or local dealer for help. Or go to the **Support & Downloads\Technical Support** page to submit your question. Our customer service staff will reply you as soon as possible.

6-4 Debug LED Codes

Regular Boot

Code	Description
10	PEI Core is started.
11	Pre-memory CPU initialization is started.
12~14	Reserved.
15	Pre-memory North-Bridge initialization is started.
16~18	Reserved.
19	Pre-memory South-Bridge initialization is started.
1A~2A	Reserved.
2B~2F	Memory initialization.
31	Memory installed.
32~36	CPU PEI initialization.
37~3A	IOH PEI initialization.
3B~3E	PCH PEI initialization.
3F~4F	Reserved.
60	DXE Core is started.
61	NVRAM initialization.
62	Installation of the PCH runtime services.
63~67	CPU DXE initialization is started.
68	PCI host bridge initialization is started.
69	IOH DXE initialization.
6A	IOH SMM initialization.
6B~6F	Reserved.
70	PCH DXE initialization.
71	PCH SMM initialization.
72	PCH devices initialization.
73~77	PCH DXE initialization (PCH module specific).
78	ACPI Core initialization.
79	CSM initialization is started.
7A~7F	Reserved for AMI use.
80~8F	Reserved for OEM use (OEM DXE initialization codes).
90	Phase transfer to BDS (Boot Device Selection) from DXE.
91	Issue event to connect drivers.

Code	**Description**
92	PCI Bus initialization is started.
93	PCI Bus hot plug initialization.
94	PCI Bus enumeration for detecting how many resources are requested.
95	Check PCI device requested resources.
96	Assign PCI device resources.
97	Console Output devices connect (ex. Monitor is lighted).
98	Console input devices connect (ex. PS2/USB keyboard/mouse are activated).
99	Super IO initialization.
9A	USB initialization is started.
9B	Issue reset during USB initialization process.
9C	Detect and install all currently connected USB devices.
9D	Activated all currently connected USB devices.
9E~9F	Reserved.
A0	IDE initialization is started.
A1	Issue reset during IDE initialization process.
A2	Detect and install all currently connected IDE devices.
A3	Activated all currently connected IDE devices.
A4	SCSI initialization is started.
A5	Issue reset during SCSI initialization process.
A6	Detect and install all currently connected SCSI devices.
A7	Activated all currently connected SCSI devices.
A8	Verify password if needed.
A9	BIOS Setup is started.
AA	Reserved.
AB	Wait user command in BIOS Setup.
AC	Reserved.
AD	Issue Ready To Boot event for OS Boot.
AE	Boot to Legacy OS.
AF	Exit Boot Services.
B0	Runtime AP installation begins.
B1	Runtime AP installation ends.
B2	Legacy Option ROM initialization.
B3	System reset if needed.

Code	Description
B4	USB device hot plug-in.
B5	PCI device hot plug.
B6	Clean-up of NVRAM.
B7	Reconfigure NVRAM settings.
B8~BF	Reserved.
C0~CF	Reserved.

S3 Resume

Code	Description
E0	S3 Resume is started (called from DXE IPL).
E1	Fill boot script data for S3 resume.
E2	Initializes VGA for S3 resume.
E3	OS S3 wake vector call.

Recovery

Code	Description
F0	Recovery mode will be triggered due to invalid firmware volume detection.
F1	Recovery mode will be triggered by user decision.
F2	Recovery is started.
F3	Recovery firmware image is found.
F4	Recovery firmware image is loaded.
F5~F7	Reserved for future AMI progress codes.

Error

Code	Description
50~55	Memory initialization error occurs.
56	Invalid CPU type or speed.
57	CPU mismatch.
58	CPU self test failed or possible CPU cache error.
59	CPU micro-code is not found or micro-code update is failed.
5A	Internal CPU error.
5B	Reset PPI is failed.
5C~5F	Reserved.
D0	CPU initialization error.
D1	IOH initialization error.

Code	**Description**
D2	PCH initialization error.
D3	Some of the Architectural Protocols are not available.
D4	PCI resource allocation error. Out of Resources.
D5	No Space for Legacy Option ROM initialization.
D6	No Console Output Devices are found.
D7	No Console Input Devices are found.
D8	It is an invalid password.
D9~DA	Can't load Boot Option.
DB	Flash update is failed.
DC	Reset protocol is failed.
DE~DF	Reserved.
E8	S3 resume is failed.
E9	S3 Resume PPI is not found.
EA	S3 Resume Boot Script is invalid.
EB	S3 OS Wake call is failed.
EC~EF	Reserved.
F8	Recovery PPI is invalid.
F9	Recovery capsule is not found.
FA	Invalid recovery capsule.
FB~FF	Reserved.

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GIGABYTE products have not intended to add and safe from hazardous substances (Cd, Pb, Hg, Cr+6, PBDE and PBB). The parts and components have been carefully selected to meet RoHS requirement. Moreover, we at GIGABYTE are continuing our efforts to develop products that do not use internationally banned toxic chemicals.

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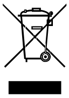

The symbol shown below is on the product or on its packaging, which indicates that this product must not be disposed of with other waste. Instead, the device should be taken to the waste collection centers for activation of the treatment, collection, recycling and disposal procedure. The separate collection and recycling of your waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling, please contact your local government office, your household waste disposal service or where you purchased the product for details of environmentally safe recycling.

- When your electrical or electronic equipment is no longer useful to you, "take it back" to your local or regional waste collection administration for recycling.
- If you need further assistance in recycling, reusing in your "end of life" product, you may contact us at the Customer Care number listed in your product's user's manual and we will be glad to help you with your effort.

Finally, we suggest that you practice other environmentally friendly actions by understanding and using the energy-saving features of this product (where applicable), recycling the inner and outer packaging (including shipping containers) this product was delivered in, and by disposing of or recycling used batteries properly. With your help, we can reduce the amount of natural resources needed to produce electrical and electronic equipment, minimize the use of landfills for the disposal of "end of life" products, and generally improve our quality of life by ensuring that potentially hazardous substances are not released into the environment and are disposed of properly.

FCC Notice (U.S.A. Only)

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult a dealer or experienced TV/radio technician for help.

Canada, Industry Canada (IC) Notices / Canada, avis d'Industry Canada (IC)

- This Class B digital apparatus complies with Canadian ICES-003 and RSS-210.
- Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.
- Cet appareil numérique de classe B est conforme aux normes canadiennes ICES-003 et RSS-210.
- Son fonctionnement est soumis aux deux conditions suivantes : (1) cet appareil ne doit pas causer d'interférence et (2) cet appareil doit accepter toute interférence, notamment les interférences qui peuvent affecter son fonctionnement.

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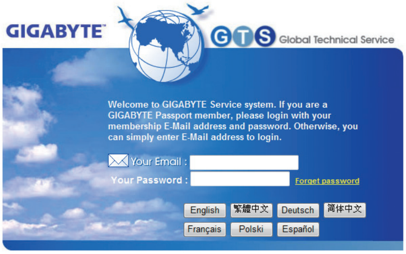

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